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THE LOGIC OF EVOLUTION

CHARLES B. McMULLEN, Ph. D.
Professor of Philosophy and Ethics, Centre College

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THE LOGIC OF EVOLUTION

CHAPTER I

WHAT IS EVOLUTION?

THE word "evolution" is derived from a Latin word, *evolvo,* meaning "to unroll." It is very important that we keep the fundamental meaning of the word in mind. I do not unfairly stress the etymology of the word in this instance, since the underlying meaning of the word is manifest in all the consistently scientific definitions of evolution. The emphasis placed on the etymology of the word—that it means an unrolling—is necessitated by the fact that so many persons have very indefinite and misty notions as to the meaning of evolution.

In our youth we were reminded of the truth of the maxim *"Ex nihilo nihil."* Even evolutionary logic has not been able to set aside this old maxim. "From nothing, nothing comes" is still a law of thought. It is equally true that one cannot unroll what was not rolled up. In other words, evolution—or the unrolling—creates no new material. It simply unrolls or unfolds what was already present. If the process starts with matter, it ends with matter. If it starts with mind, it ends with mind. If it starts with a third something neither mind nor matter which Spinoza called *"Substance,"* it ends with substance. To sum up, unrolling does not change the essential nature of the stuff unrolled.

Again, evolution is a philosophy and not a science. Philosophy has two main divisions: Ontology and Cos-

mology. These two formidable looking words of Greek parentage are not so formidable as they seem. Ontology is simply the problem of being. It raises the question as to what is the essential nature of things. Of what sort of stuff are they made? Is the world made of matter or of mind, or of both, or of a third something that is neither matter nor mind but of which matter and mind are merely manifestations? It is very evident that every thoughtful evolutionist will have some opinion or theory as to the nature of the stuff that evolves.

Cosmology is the problem of the origin of the cosmos or world. There are two possible answers—creation and evolution. The former accounts for the world as the product of creative power. The latter accounts for the world as the product of an unrolling or evolving process. Matter or mind, or a third something already referred to, undergoes an evolution which accounts for the past, the present, and the future—whatever it may be—of the world's history. The most thoroughgoing evolutionists assume the eternal existence of the stuff that undergoes evolution. This is the view of the thorough-going evolutionist who holds to the naturalistic philosophy. He starts with stuff of one of the three kinds already mentioned and accounts for the development of the world by action of certain immanent laws. There is no place for a supernatural agency either at the beginning or at any stage of the process of development.

I have already said that evolution is a philosophy and not a science. As already pointed out evolution is a theory as to the origin of the world and belongs properly to the department of cosmology. I am not saying that scientific facts may not be used to substantiate the philosophic theory of evolution. The facts of science may be used either to substantiate or to discredit the theory.

But what is the difference between philosophy and science?

Weber[1] says: "Philosophy is the search for a comprehensive view of nature, an attempt at a universal explanation of things." In other words philosophy is an attempt at explaining the sum total of things or the universe. The term "Philosophy" is sometimes used in a narrower sense, as a philosophy of art, a philosophy of ethics, and so forth.

What is science as distinguished from philosophy?

The Standard Dictionary defines *science proper* as "embracing (a) exact knowledge of *facts* (historical or empirical science), (b) exact knowledge of *laws,* obtained by correlating facts (nomological science), and (c) exact knowledge of *proximate causes* (rational science)."

It is well to note that science implies *"exact knowledge"* of facts, laws and causes. Such a conception of science rules out much of what passes current as science. A great deal that is accepted by a credulous public as the teaching of science is mere inference and not science at all. The writers of textbooks often weave together facts, conjectures and a naturalistic philosophy so intimately that only a critical reader is able to separate them and pick out what is really scientific. The purpose of Darwin's "Origin of Species" and "Descent of Man" was not to teach science but to prove the doctrine of evolution by natural selection. Many of the textbooks used in our high schools and colleges seem to have been written from the same motive.

In our examination of the evidence for evolution we need to notice whether the arguments advanced are based on *exact knowledge* of facts, laws and proximate causes.

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[1] "History of Philosophy" (Thilly's Translation), p. 1.

Much of the evolutionary argument is merely assumption or more or less plausible inference.

To sum up, philosophy is a theory or hypothesis intended to explain the universe, while science is exact knowledge. It might seem unnecessary to stress this difference, but the confusion in thought resulting from the failure to make such a distinction furnishes sufficient reason for attempting to make the difference clear.

What is evolution?

Herbert Spencer[2] defines it thus: *"Evolution is an integration of matter and concomitant dissipation of motion; during which the matter passes from an indefinite, incoherent homogeneity to a definite, coherent heterogeneity; and during which the retained motion undergoes a parallel transformation."* This is considered a model in scientific definition. It is a definition well suited to carry a definite meaning to those familiar with scientific language. It would be objected to by some on the ground that it recognizes matter and motion only and is therefore frankly materialistic. Idealistic evolutionists could not subscribe to such a definition. It also makes clear the grounds on which Spencer has been classed as a materialistic thinker.

Henry Fairfield Osborn[3] refers to "the immutable truth of evolution in the sense of the continuous fitness of animals and plants to their environment and the ascent of all existing forms of life, including man, from an original and single cellular state."

Haeckel's[4] definition of evolution is as follows: "The best definition of evolution is, the non-miraculous origin and progress of the universe." This definition reveals

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[2] "First Principles," p. 334.
[3] New York Sunday Times, March 5, 1922.
[4] Quoted by J. W. Porter in The Bible Champion, Vol. 28, Nos. 6-7, p. 315.

Haeckel's anti-supernaturalistic bias. Its purely negative form would be considered a defect. It tells what evolution is *not,* rather than what it is.

A definition of evolution sometimes given is "Descent with modifications." Such a definition has no scientific value. It is merely a truism, since all descent necessarily involves some modification. As a definition it fails because it does not indicate the amount of modification. To constitute any real evolution, such modifications must be sufficient—either at a leap or by cumulative effect—to produce an essentially different form of organism.

Le Conte's definition is probably the most scientific and in every way satisfactory formulation of the evolutionary theory that can be found. His definition is as follows:[5] "Evolution is (1) continuous *progressive change,* (2) according to *certain laws,* and (3) by means of *resident forces.*"

The first section of the definition emphasizes the continuity of the process, beginning with the inanimate world and culminating in the highest form of spiritual being. It is well to keep in mind that to Le Conte the mind or spirit is simply a modified form of physical energy.

The second and third divisions of the definition clearly rule out any supernatural agency—creative or directive—throughout the entire history of the universe. Any activity in the affairs of the world of a Personal Being over and above nature is explicitly denied. This does not preclude the identification of God and the universe as is done by the pantheists. As a matter of fact the philosophy underlying Le Conte's evolutionary theory is Pantheism. This definition is not committed to an alliance with materialism or idealism, or Spinozism, and

[5] "Evolution and Its Relation to Religious Thought," p. 8.

for this reason it should prove acceptable to all schools of evolutionists. It confiines itself to the *method* of evolution without saying anything about the world ground or stuff which is subject to a process of evolution. The definition allows for either gradual or for paroxysmal changes in organic forms. The latter is Le Conte's own theory.

How many varieties of evolutionists are there?

It is difficult to classify evolutionists since there is so much overlapping. From the philosophic standpoint, evolutionists may be divided into monistic and dualistic.

Monistic evolutionists may be divided into three classes—materialistic, idealistic, and Spinozistic. Materialistic evolutionists derive all things from matter. In ancient times we find examples of this school among the Greek Atomists. The Greek Atomists account for the world in terms of chance combinations of material particles. In modern times this school is represented by the German scientists, Vogt, Büchner and others. Herbert Spencer is probably the most noted English representative. Some persons affirm that Herbert Spencer was not a materialist, but a man who explains the development of the world in terms of matter and motion cannot logically be placed in any other category, even though he frequently refers to an "Unknown Cause" as the world ground. In any case this Unknown Cause manifests itself only under the forms of matter and motion.

The idealistic evolutionist evolves all things from something that is, at least potentially, mind or thought. Hegelianism is probably the best example of this school of thought. The universe is an embodiment of reason or mind. Its evolution is a logical process.

The third school of monistic evolutionists finds its philosophic basis in Spinoza's Substance, which, you will remember, is neither matter nor mind but a third some-

thing of which matter and mind—Spinoza said "thought and extension"—are attributes. This theory seems to be becoming increasingly popular with our present-day psychologists.

Dualistic evolutionists may be divided into two classes: deistic evolutionists and the so-called theistic evolutionists. As already noticed, dualists—as contrasted with monistic thinkers—believe in the existence of two separate substances, matter and spirit.

A deist is one who believes that God created the material of the universe and governs it by means of unchangeable laws. Any intervention or direct influence of God in the affairs of the universe is denied. A modified form of deism allows for the creation of a few organic forms—not merely the matter of the world—and accounts for all later forms of life as an evolution from these. This seems to have been the theory of Darwin at one period in his life.

What is theistic evolution? Before we can answer this question we must know what theism is. Flint[6] defines it as follows: "Theism is the doctrine that the universe owes its evistence, and continuance in existence, to the reason and will of a self-existent Being, who is infinitely powerful, wise and good. It is the doctrine that nature has a Creator and Preserver, the nations a Governor, men a heavenly Father and Judge."

Another definition[7] is: "In philosophy, the ontological theory of the universe that affirms the existence of one infinite personal God, the Creator, Preserver, and Ruler of the universe; opposed to anti-theism."

Theism, then, is the theory which posits a Supreme Being who created the universe and governs it by his free will. In contrast with deism, theism is[8] a "Belief

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[6] "Theism," p. 18.
[7] Standard Dictionary, Theism, 3.
[8] Standard Dictionary.

in the personality and sovereignty of one righteous and eternal deity who has revealed himself supernaturally to man."

Theism affirms both the transcendence and immanence of God. It, therefore, combines the two half truths of deism and pantheism. With deism it affirms the personality and transcendence of God; with pantheism it affirms his immanence, without denying his personality as the latter does.

According to theism, God creates, controls and directs the universe. According to the theory of evolution there is no control or direction, but all development is "according to certain laws and by means of resident forces." Le Conte's definition plainly excludes any such personal direction and control of the world as is involved in theism.

In order to avoid confusion in our thinking we must distinguish between deism and theism. Clear thinking reveals the difference between the deistic conception of a universe once created and left to develop "according to certain laws and by means of resident forces" and the theistic conception of a universe created and personally controlled and directed for the attainment of certain ends. The former logically denies the possibility of God entering into any personal relationship with man to enlighten or aid him. The latter recognizes such a relationship. The former excludes a supernatural revelation, any immediate and supernatural activity of God, as in miracles, and any supernatural means of salvation. Theism and deism, while having some points in common, are distinct and opposed theories when it comes to their conception of God's relation to the universe.

The only other philosophy besides deism that we are liable to confuse with theism is pantheism. However, the distinction between them is not difficult to make.

Theism teaches that there is a personal God who transcends—exists above and apart from—the universe and at the same time is immanent or dwells in the universe. Pantheism teaches that God does not transcend the universe, but that God and the universe are coextensive. Theism teaches God's immanence in the universe; pantheism teaches God's *identity with* the universe. Theism teaches that God *created* the universe; pantheism teaches that God *is* the universe.

In the light of the distinctions pointed out in the conceptions of theism and pantheism there would seem to be no reasonable excuse for confusing theism and a pantheistic theory of evolution.

With all the more assurance, it may be said that there is no reason for confusing theism and any atheistic theory of evolution.

All the different varieties of evolution may, I believe, be classed under one of these three heads: deistic, pantheistic, atheistic.

I have purposely omitted one type of evolutionist—the agnostic. If he does not know where he belongs, how should I? More seriously—careful study will justify placing such thinkers in some one of the three classes mentioned. Herbert Spencer's Unknown Cause, for example, has the ear-marks of pantheism.

To sum up, then, as to the possible forms of evolution. There may be a logically consistent deistic theory of evolution. There may be a logically consistent pantheistic theory of evolution. There may be a logically consistent atheistic theory of evolution. In fact these theories lend themselves naturally to—if they do not logically necessitate—the theory of evolution. But there cannot be a logically consistent theistic theory of evolution. Le Conte's definition of evolution, already quoted and discussed contains the essential principles of all thorough-

going and consistent theories of evolution—deistic, pantheistic, or atheistic. But is is evident that theism implies a close, personal and continued activity in the affairs of the universe that is incompatible with Le Conte's—or any other consistent—theory of evolution.

If, then, theism is inconsistent with any thoroughgoing and consistent theory of evolution, there can be no such thing as *Christian* Evolution; since Christianity is a species or form of theism. I am not affirming that a Christian cannot believe in evolution in the sense in which that word is used by Le Conte, but I do affirm that the two positions are logically irreconcilable. We know that two such incompatible views may be entertained at the same time; because it has been done. It is simply another example of an individual carrying about opposing beliefs in different mental pockets, or as some one has said, in "logic-tight compartments." Where the logical faculty is weak and undeveloped, the adoption of an evolutionary philosophy often seems to affect religious belief very little, if at all. In other cases the impact of two irreconcilable theories is disastrous. Our colleges and universities are full of such examples.

Others who wish to be known as Christian evolutionists are unconscious deists. They do not realize that by denying the personal operation of God in the universe they have taken their stand in the deistic camp and that an evangelical Christian belief with its supernatural revelation, its miracles, and its supernatural plan of salvation is thereby logically denied.

Others are just as certainly pantheistic. Le Conte considered himself a Christian evolutionist. In the preface to his book, "Religion and Science," writeen in 1873, he speaks of it as "an earnest attempt to reconcile the truths revealed in Scripture with those revealed in nature, by one who has, all his active life, been a reverent

student of both." In the second edition of his "Evolution and Its Relation to Religious Thought," published in 1891, the pantheism which seemed present in embryonic form in the earlier work is openly advocated—though he thinks it different from and superior to ordinary pantheism.

In this latter work,[9] in speaking of his own view of first and second causes, he says, "This view is a complete *identification* of first and second causes. All causes are merely modes of the first cause. They seem to us secondary, necessary, and unconscious only because they act according to invariable law." From this quotation it is evident that Le Conte's philosophy is plain, unvarnished pantheism.

Other so-called Christian Evolutionists are only partial evolutionists. They are deists with a plus ten percent of theism. The latter factor is usually admitted only under pressure and with apparent reluctance. They might be classed as imperfect deists, or as reluctant theists. They call in the aid of a Supreme Being only when they are unable to account for the facts by an appeal to physical laws and forces. Some, beginning with the nebular hypothesis, get along very nicely till they encounter the problem of the origin of life and consciousness. At such points in the process of evolution they feel the need of supernatural intervention or assistance. Others believe it possible to account for man's body by natural evolution, but feel the need of a creative act to account for man's soul. Others admit the moral miracle of spiritual regeneration, but balk at a miracle in the physical world.

If the reputation for being an evolutionist were not so greatly desired as it is nowadays the partial evolutionist

[9] "Evolution and Its Relation to Religious Thought," p. 354.

would not sail under false colors as he now does. Kuyper[10] calls such persons "amphibious scholars." The holding of a mixture of views under one name is the source of much confusion in the discussion of today. A clear and unequivocal statement of the question at issue would reduce the points for discussion to a minimum.

We frequently hear the statement that "Evolution is God's method of creation." How nicely it harmonizes apparently conflicting views! Such a statement is intended to soothe—or possibly put to sleep—those who are disturbed by the evident conflict between the evolutionary philosophy and the Bible. Such a statement is well adapted—if not *intended*—to mislead the unthinking.

For the sake of argument we will assume that "Evolution is God's method of creation." All that is necessary, then, is to define "creation,' and we will know what "evolution" is.

The Standard Dictionary defines "creation" as "the act of creating; production out of nothing; especially the act of God in bringing the world or universe into existence." Evolution is now seen to be "the act of creating; production out of nothing; especially the act of God in bringing the world or universe into existence."

As so defined, no believer in the Bible can find any fault with "evolution." It is certain that such a definition, although true, would not prove satisfactory to any real evolutionist.

Why, then, are the terms "evolution" and "creation" equated? I can conceive of only two possible grounds for doing so. One is loose thinking, which is unscientific; the other is a desire to deceive the unwary, which is dishonest.

It is evident that such a definition is merely a piece of camouflage, serving only to confuse the issue.

[10] "Lectures on Calvinism," p. 173.

In setting forth the meaning of evolution, I have tried to make clear what evolution is by showing that it is not, strictly speaking, a scientific theory but a cosmological theory—in other words a philosophical theory. It has also been pointed out that a consistent evolutionary philosophy carries with it a definite attitude towards a personal God as directing or otherwise operative in the world. Evolution is incompatible with theism and logically involves deism, atheism, pantheism or agnosticism.

CHAPTER II

THE ORIGIN OF THE EVOLUTIONARY THEORY

I have tried to make clear the meaning of the term "evolution.' If the definitions formulated by its chief representatives are accepted, then it is incompatible with a theistic conception of the universe and, thus, incompatible with Christianity.

But, when and where did the evolutionary theory—or philosophy—originate? Who were the first advocates of the evolutionary philosophy? Probably, no one knows. The theory is as old as Greek philosophy. It originated before there was anything that might properly be called "science."

We recognize the Greeks as the source of our philosophy and science. The theory of evolution was advanced among the Greeks before they had made any real scientific discoveries. One has only to read Plato's "Timaeus" to realize how little the Greeks of the fifth century before Christ knew of anatomy, physiology, and of science generally. But such inadequate knowledge of nature did not prevent men from formulating theories of cosmic and organic evolution.

Jowett,[1] in speaking of the theories of the ancient philosophers, says, "We should remember, (a) that the nebular theory was the received belief of the early physicists; (b) that the development of animals out of frogs who came to land, and of man out of the animals, was held

[1] "Dialogues of Plato," vol. II, p. 508.

by Anaximenes in the sixth century before Christ; that even by Philolaus and the early Pythagoreans, the earth was held to be a body like the other stars, revolving in space."

We see that thus early man's animal ancestry was assumed or suggested. In this connection it is well to remember that early Greek philosophy was materialistic—probably unconsciously so. This is seen in the school of Miletus—a Greek school of philosophy which originated about 600 B. C.

Thales, a representative of this school, held that all things are but changing forms of one substance, and that substance was water.

Anaximander, a contemporary and a member of the same school, held that all things are evolved from the infinite or boundless. Man sprang from the fish which at first he resembled. Anaximander, it may be seen, was surprisingly modern in his theories. It is not probable that Anaximander knew anything about the so-called "gill slits" that the evolutionary scientists find in the human foetus of today, but that did not prevent him from assigning to man a fishy ancestor.

The pantheistic philosopher, Xenophanes, who flourished about 600 B. C., tells us that we all sprang from earth and water.

Heraclitus, who flourished about a century later, held that all things are merely transformed fire. This substance, fire, is subject to constant changes and becomes successively air, water and earth. All things come from fire and in time return to fire. "This universe, the same for all, no one, either god or man, has made; but it always was, and is, and ever shall be an everlasting fire, fixed measures kindling and fiixed measures dying out."[2]

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[2] Bakewell, "Source Book in Ancient Philosophy," p. 30.

Here we have an atheistic and materialistic evolutionary philosophy clearly set forth about 500 B. C.

In one of his dialogues—The Sophist—Plato takes exception to what he calls the "vulgar opinion" that the world and all plants and animals were brought into being by some spontaneous and unintelligible cause.[3] "Shall we say this, or that they came from God, and are created by divine reason and knowledge?" Plato, himself, believed that all things were the product of a divine art, a divine workman. It is evident that even in Plato's time —about 400 B. C.—there were two distinct and conflicting theories as to the origin of the world and man.

The Greek atomists were frankly materialistic in their philosophy. Matter is the world-ground or substance, and all things result from a process of mechanical evolution.

This philosophy was more fully worked out by Epicurus. Weber[4] tells us that the adoption of a materialistic philosophy by Epicurus was prompted by a theological bias. "Reflection on his mother's superstitious practices and the study of Democritus made him skeptical, and convinced him that our fear of the gods and the hereafter is the principal obstacle to the happiness of man; and it is the business of philosophy to make us happy by freeing us, through observation and reasoning, from the belief in the supernatural."

This philosophy is set forth fully by Lucretius, a Roman, born about 95 B. C., in his poem entitled *De Rerum Natura* (Concerning the Nature of Things).

In Watson's[5] translation of this work, the spontaneous generation of life is set forth in the following manner:

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[3] Jowett, "The Dialogues of Plato, Sophist," section 265.

[4] "History of Philosophy" (Thilly's Translation), pp. 134, 135.

[5] Lucretius on "The Nature of Things," p. 222.

"For animals that were to live on the earth, could assuredly neither have fallen from the sky, nor have come forth from the salt depths *of the sea.* It remains, *therefore, to believe,* that the earth must justly have obtained the name of MOTHER, since from the earth all living creatures were born. And even now many animals spring forth from the earth, *which are* generated by means of moisture and the quickening heat of the sun." (The words in italics were added by the translator in order to bring out the meaning more clearly.) These statements written nearly two thousand years ago have a surprisingly modern ring as we shall see when we come to consider modern theories as to the origin of life.

A little farther along,[6] we have the doctrine of the survival of the fittest set forth. "Many kinds of animal life, too, must then have perished, not having been able to continue their species by propagation. For whatever *creatures* you see breathing the vital air, *assuredly,* either craft or courage, or at least activity, has preserved and defended their race from the commencement of its existence . . . . . In the first place, courage has protected the fierce brood of lions and the savage races *of other wild animals;* and craft *has secured* the fox, as swiftness *has saved* the stag."

We see then that the evolutionary philosophy is not a modern invention. It is as old as philosophy itself. In Plato's view the evolutionary philosophy was hostile to man's religious interests and a menace to sound morality. Even in his time this materialistic thought as set forth in "the sayings of wise men, poets, and prose writers" was finding an entrance into the minds of young men and, as he believed, undermining morality.

I believe that it has been made sufficiently clear that

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[6] Ibid. p. 224.

the philosophy of evolution did not originate in scientific knowledge, but that it had as its source something very different from observed facts.

Professor James was a man who was endowed with considerable insight in matters of philosophy. He also spoke frankly and fearlessly, regardless of whose house of cards might tumble to the floor. In one of his books,[7] he says: "The plain truth is that the philosophy of evolution (as distinguished from our special information about particular cases of change) is a metaphysical creed, and nothing else. It is a mood of contemplation, an emotional attitude, rather than a system of thought—a mood which is as old as the world, and which no refutation of any one incarnation of it (such as the Spencerian philosophy) will dispel; the mood of fatalistic pantheism, with its intuition of One and All which was, and is, and ever shall be, and from whose womb each single thing proceeds. Far be it from us to speak slightingly here of so hoary and mighty a style of looking on the world as this. What we at present call scientific discoveries had nothing to do with bringing it to birth, nor can one easily conceive that they should ever give it its quietus, no matter how logically incompatible with its spirit the ultimate phenomenal distinctions which science accumulates should turn out to be. It can laugh at the phenomenal distinctions on which science is based, for it draws its vital breath from a region which—whether above or below—is at least altoegther different from that in which science dwells. A critic, however, who cannot disprove the truth of the metaphysic creed, can at least raise his voice in protest against its diguising itself in 'scientific' plumes."

In the light of our brief historical excursion it is seen

[7] "The Will to Believe," pp. 253, 254.

that the evolutionary philosophy can boast an ancient lineage—one antedating the birth of science itself. If any family relationship exists between the two, science must be the daughter and not the mother of the evolutionary philosophy. Evolution is an ancient attempt to solve the world riddle. It originated, so far as we know, in an age when many of the Greek leaders of thought were breaking away from polytheism. It is not surprising, therefore, to find a strong tendency toward atheistic materialism and materialistic pantheism. We have in the evolutionary philosophy one of the most interesting and ingenious products of the creative and prolific Greek imagination.

To much the same effect, Bavinck[8] says: "The new roads in philosophy have all been traveled by the thinkers of ancient Greece. It is difficult to square this fact with the theory of evolution and its boast of the wonderful progress of our times. But in reality the limitations of the human intellect soon become apparent, the originality of thought is soon exhausted. Troeltsch, strikingly, remarks that 'the number of those who have had something really new to tell the world has always been remarkably small, and it is astonishing to observe on how few ideas humanity has actually subsisted.' "

[8] "The Philosophy of Revelation," pp. 32, 33.

CHAPTER III

THE LOGIC OF EVOLUTION

If a proposition is to be proved—if it is not a self-evident truth—it must either be demonstrated or proved by inductive or deductive inferences that are of such a nature that they cannot reasonably be questioned.

Now, no sane man would affirm that evolution, as defined by Le Conte, Spencer and others, is an axiom or self-evident truth. Nor has evolution, as so defined, been demonstrated. If it had been there could be no question as to fact. Such a demonstration would also simplify the problem as to method, since it would bring the process of evolution under observation.

Since evolution is neither a self-evident truth nor a demonstrated fact, a reasonable belief in it must depend on scientific inferences that are logically sound and conclusive in their nature.

I am not of those who depreciate the study of logic as a fruitless pastime. The more I read the works devoted to proving the evolutionary hypothesis, the more deeply I am impressed with the practical need of more knowledge of the laws of logical thinking.

I realize that it is eminently unfair to exploit as evolutionary logic the absurdities in reasoning of those who do not stand out as representative thinkers, either in the physical sciences or in some allied department of thought. It is my purpose to mention a few of the forms of reasoning—logical and otherwise—commonly employed by those who hold a brief for evolution. Some of the lines

of argument used are clearly logical fallacies, others are in the nature of misrepresentations or caricature of an opponents position, while others are inconclusive forms of reasoning or methods of scientific reasoning that have only tentative or suggestive value.

Let us take up first the argument from authority, since it is so commonly and so confidently employed.

The argument from authority is an appeal to great names in the effort to prove one's point. Are we not assured over and over again that all the leading biologists of today are evolutionists? Sometimes the argument takes the form of an appeal to a few great scientists as proof conclusive. Some of us are not deeply impressed by such an argument, since we prefer to examine the evidence on which the conclusion is based. We are reminded, however, that proof depends on two things; facts and inferences. While the layman may not be able to keep all the facts in mind, he can at least scrutinize the logic employed by the evolutionary propagandist. For some reason or other, the argument from authority seems inconclusive. And why? Because many theories now considered dead, to stay dead, once could have been conclusively proved by the appeal to authority.

And further, the agreement so vociferously and confidently asserted does not lie in the premises but in the conclusion—that conclusion being, of course, that evolution is true. All roads lead to Rome. All sorts of premises lead to the conclusion that evolution is true. One scientist's premises are denied and even ridiculed by another scientist of equal or greater repute. A conclusion dependent on a multitude of conflicting premises is open to suspicion. That the conclusion is accepted by a large number of scientists does not constitute a convincing argument.

Very few of those who call themselves evolutionists are conversant with the facts which are appealed to in the support of the evolutionary theory. In fact a very small per cent of these are able to advance any considerable number of arguments for evolution. When cornered and compelled to give a reason for their faith they can only appeal to the leading advocates of evolution whom they know only by name. As already pointed out, authority is not a conclusive form of argument. Truth refuses to be determined by a count of noses, even though the said noses may belong to biologists and geologists. For the man who *thinks,* authority—so far it is an expression of opinion—may furnish social confirmation and thus strengthen conviction, but it cannot prove anything conclusively.

The argument from authority might be considered an application of the law of probability, on the ground that a theory accepted by an overwhelming majority of experts carries with it a high degree of probability. But we must remember what it is that the biological authorities generally are trying to prove—so long as they function as biologists and not as philosophers. It is simply this, that man, the most highly developed genus of the animal kingdom, has been produced from another animal of lower order by a process of evolution. The world's greatest thinkers have seen more in man than an animal, even of a highly improved sort, and what is demanded is some theory that will offer more than a plausible explanation of man's physical organism. So far as we know anything of the history of man, he has conceived of himself as not merely an animal but as a moral personality.

In addition then to the logical weakness of the appeal to authority, in this case it has the further weakness of appealing to experts—of varying degrees—who are not

qualified to testify in the case at issue, since the most essential element in man's nature lies outside of their province. If the biological authorities were able to advance a theory adequate to explain man's nature as a moral agent with a promise of more than a limited animal existence, then one might have some excuse for accepting their theories. But even then they would not have proved creation impossible. To prove creation impossible they would be compelled to desert the sphere of empirical science and become philosophers. They would have to know more than any biologist—as a mere biologist—has a right to know.

George Ticknor Curtis, in concluding a critical examination of "The True Office of Experts",[1] says: "But, after all, the new theory challenges our belief. If we examine it at all, we must judge of it not by the numbers of those who propound or accept it, or by any amount of mere authority, but by the soundness of the reasoning by which its professors support it." We must not forget that a theory needs the support of reasoning, and that loose thinking in the field of the natural sciences is loose thinking whether it has been employed by a noted investigator or by one less well-known.

All students of logic know that the appeal to authority is a logical fallacy. It is known as "Ignoratio Elenchi," or being ignorant of the nature of refutation. It ignores the point at issue. While it may be used with a consciousness that it has no logical value and with a purpose to deceive the unwary, it is only charitable to assume that its common use by evolutionists is due to ignorance of the principles of logical thinking.

This line of argument is well illustrated by Henry Fairfield Osborn in his answer to Mr. Bryan's article

[1] "Creation or Evolution," p. 23.

on "God and Evolution" in which he says:[2] "But I would like to state positively, as a result of twenty-one years of single research for the United State Geological Survey, that in my opinion Natural Selection is the only cause of evolution which has thus far been discovered and demonstrated." And further, "No living naturalist, however, so far as I know, differs as to the immutable truth of evolution in the sense of the continuous fitness of plants and animals to their environment and the ascent of all the extinct and existing forms of life, including man, from an original and single cellular state."

The quotations given are typical of the constant appeal to authority made by the leaders, as well as by the rank and file of those who pin their faith to the evolutionary hypothesis.

There is a poorly concealed fallacy in Professor Osborn's appeal to naturalists as authorities qualified to settle the question of evolution. As I have already pointed out, man gives evidence of being more than an improved animal. The naturalist is an authority on nature—plants and animals. He is supposed to know something about their nature and life history, including their environment. Consequently, the naturalist may advance his theories as to the origin, development and nature of man as a living organism, but he is not qualified, as a naturalist, to pass on man's mental, moral and religious endowments. This fact shows the limitations of his field. To commit man to the tender mercies of the naturalists would be to surrender our high estimate of man and reduce him to the limitations necessitated by their theory as to his origin. This we would be foolish to do.

Hibben[3] in discussing the argument from authority—

[2] The New York Times, March 5, 1922.
[3] "Logic, Deductive and Inductive," p. 163.

a variety of the *Ignoratio Elenchi,* technically known as "Argumentum ad verecundiam"—says: "This is an appeal to the sentiment of veneration for authority, instead of an appeal directly to the reason. The weight of great names is with some persons the most convincing of all arguments. Logically it is not an argument at all. It may serve to confirm truth, but it does not establish it."

We see, then, that in the last analysis authority proves nothing conclusively.

The argument from analogy is extensively used by evolutionists. It is probably the argument most used, and abused, in the support of evolution.

What is analogy? The Standard Dictionary defines analogy as "Reasoning in which from certain observed and known relations or resemblances others are inferred." The plain man argues from the similarity of whale and fish that the whale is a fish. The bat has wings and the general appearance of a bird, therefore it is a bird. Such analogies are based on superficial resemblances and are utterly lacking in scientific value. The evolutionary biologist argues from anatomical likeness or physiological similarity to a family relationship and unity of descent. Darwin[4] illustrates the method of analogy in the following argument. "It is well known that the hair on our arms tends to converge from above and below to a point at the elbow. This curious arrangement, so unlike that in most of the lower mammals, is common to the gorilla, chimpanzee, orang, some species of Hylobates, and even to some few American monkeys." . . . . . "If the above explanation is correct, as seems probable, the direction of the hair on our own arms offers a curious record of our former state, for no one supposes that it is now of any use in throwing off the rain; nor, in our present

[4] "Descent of Man," pp. 147-148.

erect condition, is it properly directed for this purpose . . . . . With respect to the similar direction of the hair on the forearms of man and certain monkeys, as this character is common to almost all the anthropomorphous apes, it may probably be attributed to inheritance; but this is not certain, as some very distinct American monkeys are not thus characterized."

What is the argument? The hair on our arms slopes in the same direction as that on the arms of some of the anthropomorphous apes. Therefore, we are closely related to the anthropomorphous apes. It is well to notice that the hair on the arms of some anthropomorphous apes does not slope in the same direction as on the arms of man. What then becomes of the argument from analogy? Are we closely related to those only that agree with us in the way the hair slopes on their arms? One can see how flexible the argument from analogy is. Use analogies when they help your case, ignore them when they do not. The example just given is typical of Darwin's use of analogical reasoning.

Nor was Darwin the only offender in the use of analogy. Baldwin, in discussing Herbert Spencer's contribution to thought says,[5] "Then as to his method, that too is a great limitation. It has always seemed to me that Mr. Spencer was a great example of the costliness of analogy. Analogy, analogy everywhere. It is not a part of the interconnection of the sciences that the facts of one should be explained by analogies from another; yet such a procedure Spencer constantly falls into. Chemical analogies in biology, biological analogies in psychology and sociology, mechanical analogies — integrations, dissolutions, reintegrations — all the way through. In psychology this is especially deplorable,

[5] "Fragments in Philosophy and Science," pp. 356-357.

since it leads to a general tendency—also apparent in sociology—to be satisfied with inadequate analysis; and inasmuch as the analogies are drawn from spheres of similar activities, it is just the refinements which characterize the higher as higher that escape it. Everybody knows the flat sterility which results when the association theory is applied to the higher reaches of thought and conduct. It is like proving a bed of tulips to be mere onions by going through them and nipping off the tell-tale blooms. So to solve the problems of psychology by biological or chemical analogies, is to make use of a weapon, which, figuratively speaking, nips off all the blooms."

After pointing out the fact that Spencer was a victim of the illusion of simplicity—considering one phase of a matter only—Baldwin[6] goes on to say: "The same thing is seen in the ease with which difficult places are glossed over. A bridge of analogy or often of mere vagueness of expression covers a yawning gap, often at a most critical place. This, however, is so common a criticism of Mr. Spencer, that I need not take it further."

It is a matter for congratulation that we have such a discriminating and, at the same time, sympathetic criticism of Mr. Spencer's scientific method by such an able fellow evolutionist as Professor Baldwin. In the light of Baldwin's criticism of Spencer's scientific method, we would seem to make no mistake in referring to his scientific works as a whole as "Spencer's Analogy."

It is unfortunate that physical scientists are so prone to weave facts and theory so closely together that only the expert can disentangle them. Dawson[7] says: "In the true interests of science we are called on to follow the weighty advice of Virchow: 'Whoever speaks or

[6] Ibid., p. 358.
[7] "Modern Ideas of Evolution," pp. 66-67.

writes for the public ought, in my opinion, doubly to examine just now how much of that which he says is objective truth. He ought to try as much as possible to have all inductive extensions which he makes, all conclusions arrived at by the the laws of analogy, however probable they may seem, printed in small type under the general text, and put into the latter only that which is objective truth.' . . . . The mischief which may be done to science by an opposite course is precisely similar to that which may be done to religion by sensational preaching founded on distortions of scriptural truth, or on fragments of texts taken out of their connection and used as matter for streams of imaginative declamation."

One cannot avoid the conclusion that if Virchow's suggestions were followed out by writers on evolution their texts would be overburdened with footnotes and fine print.

Darwin,[8] summing up his reasons for including all animals as products of evolution by natural selection, says: "Throughout whole classes various structures are formed on the same pattern, and at a very early age the embryos closely resemble each other. Therefore I cannot doubt that the theory of descent with modification embraces all the members of the same great class or kingdom. I believe that animals are descended from at most only four or five progenitors, and plants from an equal or lesser number.

"Analogy would lead me one step farther, namely, that all animals and plants are descended from some one prototype. But analogy may be a deceitful guide."

Let us next consider mere conjectures and assumptions of evolutionists.

J. W. Dawson,[9] himself a geologist of the first rank,

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[8] "Origin of Species," vol. II, p. 182.
[9] "Story of the Earth and Man," pp. 329-330.

calls attention to the element of pure "assumption" in the writings of Darwin and Spencer. His statement is as follows: "The reader will now readily perceive that the simplicity and completeness of the evolutionist theory entirely disappear when we consider the unproved assumptions on which it is based, and its failure to connect with each other some of the most important facts in nature: that, in short, it is not in any true sense a philosophy, but merely an arbitrary arrangement of facts in accordance with a number of unproved hypotheses. Such philosophies, 'falsely so called,' have existed ever since man began to reason on nature, and this last of them is one of the weakest and most pernicious of the whole. Let the reader take up either of Darwin's great books, or Spencer's 'Biology,' and merely ask himself as he reads each paragraph, 'What is assumed here and what is proved?' and he will find the whole fabric melt away like a vision. He will find, however, one difference between these writers. Darwin always states facts carefully and accurately, and when he comes to a difficulty tries to meet it fairly. Spencer often exaggerates or extenuates with reference to his facts, and uses the arts of the dialectician where argument fails."

By way of illustration Dawson quotes from Spencer's[10] "Principles of Biology," a part of which I shall use. "But the experiences which most clearly illustrate the process of general evolution are our experiences of special evolution, repeated in every plant and animal. Each organism exhibits, within a short space of time, a series of changes, which, when supposed to occupy a period indefinitely great and to go on in various ways instead of one, may give us a tolerably clear conception of organic evolution in general. In an individual development we

[10] "Principles of Biology," Sect. 118.

have compressed into a comparatively infinitesimal space a series of metamorphoses equally vast with those which the hypothesis of evolution assumes to have taken place during those unmeasurable epochs that the earth's crust tells us of . . . If a single cell under appropriate conditions becomes a man in the space of a few years, there can surely be no difficulty in understanding how, under appropriate conditions, a cell may in the course of untold millions of years give origin to the human race."

The illustrations given are far from conclusive. And further, illustration does not constitute proof. The single cell—a product of matter and motion, according to Spencer—with which he starts is nothing but a cell during its entire lifetime—from infancy to its senility. It is a cell with no assurance that it will ever become anything else and no reason why it should. To use a slang expression, it is "all dressed up with nowhere to go."

The use of the expression "special evolution" to describe the development of the mature individual from a single cell is calculated to give the impression that an assumed "general evolution" and the development of the individual are similar phenomena—a misleading impression, since the conditions of development in the two cases are so essentially different. In the expression, "the hypothesis of evolution assumes," we have a confession that the "general evolution" which is held to be analogous to the life history of the individual is after all merely an assumption.

We do find some difficulty in understanding how a cell that does not boast a human ancestry can develop into a human being. Time is a great solvent, but is a gratuitous assumption that time—even "untold millions of years"—can transform a single cell which remains a single cell throughout its life history into a complex organism capable of tracing back its ancestry to this same

unicellular organism. It is pure assumption to suppose that single cells with nothing back of them but a unicellular ancestry have ever risen to a higher level. That "appropriate conditions" for the development of such an organism into a human being have ever existed is a further assumption. Squeeze the analogy and assumption out of the lines quoted above from Spencer and very little, if anything, remains.

Darwin's[11] hypothetical family tree is another good example of evolutionary assumption—or rather a series of them. "The most ancient progenitors of the vertebrata, at which we are able to obtain an obscure glance, apparently consisted of a group of marine animals, resembling the larvae of existing Ascidians. These animals, probably gave rise to a group of fishes, as lowly organized as the lancelet; and from these Ganoids, and other fishes like the Lipidosiren, must have been developed.. From such fish a very small advance would carry us on to the Amphibians. We have seen that birds and reptiles were once intimately connected together; and the Monotremata now connect mammals with reptiles in a slight degree. But no one can at present say by what line of descent the three higher and related classes namely, mammals, birds, and reptiles, were derived from the two lower vertebrate classes, namely amphibians and fishes. In the class of mammals the steps are not difficult to conceive which led from the ancient Monotremata to the ancient Marsupials; and from these to the early progenitors of the placental mammals. We may thus ascend to the Lemuridae; and the interval is not very wide from these to the Simiadae. The Simiadae then branched off into two great stems, the New World and Old World monkeys; and from the latter, at a remote

11 "The Descent of Man," p. 160.

period, man, the wonder and glory of the Universe, proceeded."

Some of the assumptions involved in this family history of man are apparent from the language used. Let us notice those that are the most evident. We have, "we are able to obtain an obscure glance," "apparently," "probably," "must have been developed," "a very small advance would carry," "in a slight degree," "but no one can at present say," "the steps are not difficult to conceive," and "the interval is not very wide."

The language used shows that Darwin was not able to make a very strong case for man's descent from the lower animals. By his own confession, the line of descent is little if anything more than a series of assumptions. It is hardly necessary to remark that such a loosely constructed family tree would not go far in the courts toward establishing one's claim to property. It would seem as if evolutionary science is satisfied with a type of reasoning that would not be considered conclusive if employed in other departments of thought. Eliminate the assumptions in the quotation given and one would have a few isolated facts but no genetic relations or evolution.

Other assumptions, not evident from the language used, are to be found in the quotation. One of these is the relation of the Old and New World monkeys to[12] "one extremely ancient progenitor"; another is the assumed descent of man from an Old World monkey. The paragraph quoted does not meet the requirements of our definition of science as embracing exact knowledge of facts, laws and proximate causes.

Huxley[13] shows the same tendency to employ mere assumptions where some sort of evidence is demanded in the interest of scientific certainty. He illustrates this

[12] "The Descent of Man," p. 150.

[13] "More Criticisms on Darwin, and Administrative Nihilism," p. 36.

tendency in defending Darwin against his critics. "There is every reason to believe that consciousness is a function of nervous matter, when that nervous matter has attained a certain degree of organization, just as we know the other 'actions to which the nervous system ministers,' such as reflex action and the like, to be. As I have ventured to state my view of the matter elsewhere, 'our thoughts are the expression of molecular changes in that matter of life which is the source of our other vital phenomena.' "

"That consciousness is a function of nervous matter" is an assumption that has not been substantiated, nor is there every reason for believing it. That "our thoughts are the expression of molecular changes" was merely Huxley's "view of the matter."

When Alfred Russell Wallace asked for some explanation as to how movements of particles of matter could pass into consciousness, sensation and thought, he replied, "I really know nothing whatever, and never hope to know anything, of the steps by which the passage from molecular movement to states of consciousness is effected. . . . . All that I have to say is, that, in my belief, consciousness and molecular action are capable of being expressed by one another, just as heat and mechanical action are capable of being expressed in terms of one another."

And then to show that he has valid grounds for his *belief* in such relationship—evidently a causal one, from the analogy used, that of heat and mechanical action—he attempts to prove his point by analogy.

In the passage quoted above, Huxley says, "I really know nothing whatever, and never hope to know anything, of the steps by which the passage from molecular movement into states of consciousness is effected." Now what is it that Huxley confesses his ignorance of? Is

he puzzled by facts? What puzzles him is how the passage from molecular movement to states of consciousness takes place. That there is such a passage and that the two are related "as heat and mechanical action are" is a mere assumption, a part of his theory. If he had proved that there is such a passage, he could be excused for his inability to understand how it takes place. He should have proved the *that* before he confessed his ignorance as to *how*. His difficulty is not caused by the mystery inherent in facts, but is simply the result of his own assumption. In assuming that which he ought to prove, Huxley betrays the same logical weakness that we found manifested in the writings of Spencer and Darwin.

To call attention to all the unwarranted assumptions of the evolutionists would call for a series of volumes that would more than fill Eliot's famous five foot bookshelf —and not with valuable literature either. One more brief quotation must suffice.

In criticising the attempts of certain sociologists to give us a history of the family as an institution, tracing its evolution through various forms of marital relationship, Schurman[14] says: "Thus the theory of Morgan, like that of McLennan, reaches out into a past and future as distant as each is hypothetical. Hence some of the objections urged against McLennan's theory are equally applicable to Morgan's. There is, for instance, not the slightest ground, apart from the exigencies of a theory, for the assumption of an aboriginal promiscuity in sexual relations, which, indeed, both archaeology and biology tend to disprove. And it may be reiterated once more that it is a gratuitous concession to our methodology when the facts of the world are supposed to arrange themselves according to our mode of apprehending them.

[14] "The Ethical Import of Darwinism," pp. 229-230.

We have no evidence whatever that all branches of the human family passed through precisely the same stages of development, either in general or, still less, in the details of their social institutions. There is the πρῶτου ψευδος of the theory before us. And not only does this baseless assumption determine the initial stage of the theory; it colors it from beginning to end."

Schurman, in this quotation, points out the thoroughly artificial character of the history of the family as pictured by our present day sociologists. He shows that such histories are not histories, but merely hypothetical constructions advanced as histories. Sexual promiscuity, the basis of the structure, Morgan admits has not been practiced "within the time of recorded human observation," but it is "deduced theoretically as a necessary antecedent to the consanguine family." (Quotations used are taken by Schurman from Morgan's own work.) It is clear, then, that the ground of Morgan's whole history (?) of the human family is merely a theoretical deduction. A deduction from what? From the consanguine family. And how about the consanguine family from which the deduction is made? The consanguine family, according to Schurman, is a somewhat doubtful institution since, according to Morgan, it has not existed in historic times. Its existence depends not upon facts of history or upon present day observations but upon the use of certain terms of doubtful meaning upon which Morgan places one construction and Schurman another. Schurman does not find in the use of these terms any conclusive proof for a consanguine family.

We have seen that the foundation of the evolutionist's history of the family is rather unsubstantial. But how is the superstructure built up? A brief quotation from Schurman[15] will answer our question. "Isolating the

[15] Ibid., p. 240.

various conjugal relations from their historic settings, in which alone an explanation of each is to be found, the theorist generally puts them into an arbitrary row, as one might string beads, and then asseverates that this linear arrangement of contemporaneous phenomena in space corresponds to the successive order of their evolution in time. Meanwhile, no one knows that there has been such a universal development; or that there ever was a time when all the forms of the family did not coexist as they do today."

The logic of the sociologist, when he attempts to portray prehistoric social conditions, corresponds to the method of reasoning employed by Darwin, Spencer and Huxley in their biological reasoning. These elements of conjecture and assumption are inevitable since the writers transcend the sphere of the known. Such historical reconstruction is merely a deduction based on the assumption of the truth of evolution as a philosophy of the universe. This assumption furnishes a basis for the arrangement of the facts known and where facts are lacking furnishes the authority for creating them.

Many more examples of the same sort could be cited, but these must suffice.

Another characteristic of much of the evolutionary propaganda is its narrowness and intolerance. Those who hold to conservative views in religion and oppose the evolutionary philosophy are often accused of ignorance, intolerance and bigotry. But let us hear from an evolutionist on this point.

LeConte,[16] himself an evolutionist, did not consider the conservatives in theology the only offenders along this line; as witness the following: "Many seem to think that theology has a 'pre-emptive right' to dogmatism. If so, then modern materialistic science has 'jumped the claim.'

[16] "Evolution and Its Relation to Religious Thought," pp. 293-294.

Dogmatism has its roots deeply bedded in the human heart. It showed itself first in the domain of theology, because there was the seat of power. In modern times it has gone over to the side of science, because here now is the place of power and fashion. There are two dogmatisms, both equally opposed to the true rational spirit viz., the old theological and the new scientific."

In much the same vein we have the following from Schurman:[17] "That the missing evidence in the evolutionary theory of causation may yet be supplied, everyone who has felt the divine impulse to science will ardently hope, as the more enthusiastic, indeed, confidently predict. In fact, the belief in the ultimate perfectibility, if not in the present perfection, of the doctrine has become a part of the scientific fanaticism with which our age matches the religious fanaticism of the sixteenth century. And so it happens that the majority of readers are scarcely aware of the hitches in the Darwinian argument any more than they were formerly aware of the intellectual difficulties in the way of many accepted theological dogmas."

The two statements just quoted are the views of men who can not be accused of having any bias in favor of conservatism. While I heartily agree with what they say in regard to dogmatism and fanaticism among scientists, it is a great satisfaction not to be compelled to make such assertions on my own authority.

A mark of dogmatism and arrogance is the assertion, so frequently made, that all thinking men are evolutionists. The idea is conveyed, either by implication or by direct assertion, that those who do not accept the evolutionary hypothesis are lacking in intelligence.

I have already quoted LeConte as to the prevalence of

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[17] "The Ethical Import of Darwinism," p. 72.

dogmatism among physical scientists. I shall now use him as an illustration of this failing. In the work already referred to, he says:[18] "In conclusion, let me again impress upon the reader that all the doubt and discussion above described, as to the factors of evolution, is entirely aside from the truth of evolution itself, concerning which there is no difference of opinion among thinkers."

It seems strangs indeed that LeConte's acquaintance was so limited that he did not know—or at least know of—a real thinker who did not accept the evolutionary theory. Others of us have been much more fortunate than he in this respect. One is compelled to believe that the quotation just given is an expression of prejudice and not of fact.

In speaking of the story of creation as set forth in the first chapter of Genesis, Schurman[19] says: "Read once more the beautiful legend with which the Bible opens—a legend so poetically vivid that Darwin's contemporaries still took it for history, as men devoid of culture and literary feeling do to this day—read this story, I repeat, and you will see that the writer conceives of the species of plants and animals as sudden and unchangeable creations, with metes and bounds for each, and an impassable chasm between man and every other species."

Schurman is more charitable in his estimate of those who do not agree with him than evolutionists generally are. But still it can hardly be considered a compliment to be accused of being "devoid of culture and literary feeling." However, one hardly feels justified in resenting what is said in such a nice way.

In advocating the "documentary theory," as applied to the composition of the Book of Genesis, W. N. Rice[20]

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[18] Op. cit., p. 80.
[19] Schurman, "Agnosticism and Religion," p. 21.
[20] "Christian Faith in an Age of Science," pp. 81-82.

says: "There is no reasonable doubt that the two narratives were written at different times and by different persons. There is at present, among those who are competent to have an opinion on the subject, substantial unanimity in the belief that the Book of Genesis is a composite structure, containing fragments of documents of various ages which a later editor collected into the present compilation."

One can but wonder whether Professor Rice ever heard of William Henry Green's "The Unity of the Book of Genesis," a work of nearly six hundred pages and written by a man who for fifty years was a student and teacher of Old Testament literature and who was able to meet the German critics on their own ground. Is such a man to have his testimony ruled out of court on the ground that he is not "competent to have an opinion on the subject"?

I might add, at this point, that the division of Genesis into two documents has a disturbing effect on the history. As Dr. Green points out, Jacob goes to sleep in one document and wakes up in the other. But what do the critics care so long as scholarship is vindicated?

Ballard[21] gives the following quotation from Romanes[22] as an illustration of narrow-mindedness: "Such then, is a sketch of the evidence in favour of organic evolution. Of course in such a meagre outline it has not been possible to do justice to that evidence which should be studied in detail rather than looked at in such a bird's-eye view as I have presented. Nevertheless, enough, I hope, has been said to convince all reasonable persons, that any longer to withhold assent from so vast

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21 "The Miracles of Unbelief," Preface to First Edition, p. XXVII.

22 "The Scientific Evidences of Organic Evolution," pp. 76, 77.

a body of evidence is a token not of intellectual prudence but of intellectual incapacity. With Professor Huxley, therefore, I exclaim, 'Choose your hypothesis, I have chosen mine,' and 'I refuse to run the risk of insulting any sane man by supposing that he seriously holds such a notion as that of special creation.' These words, I submit, are not in the least too strong. For if any man can study the many and important lines of evidence, all converging on the central truth that evolution has been the law of organic nature, and still fail to perceive the certainty of that truth, then I say that that man—either on account of his prejudices or from his inability to estimate the value of evidence—must properly be regarded as a weakminded man."

The quotation just given illustrates the temperamental character of Romanes' reasoning when it comes to a question of different beliefs. Not to agree with me is a sign of "intellectual incapacity," the mark of a "weak-minded man." Carried away by feeling he fails to notice that his *"hypothesis"* becomes a *"truth"* a few lines farther down—a failing not uncommon among those who write under the stress of strong emotion. Romanes probably felt as sure of his ground in his earlier position in regard to religious belief, yet his "Thoughts on Religion," edited by Canon Gore after Romanes' death, shows a marked reversal in form. It is not wise to allow our enthusiasm for a theory to constitute proof of the truth of that theory. It is also possible for the other fellow to feel just as sure of his position and with much better reason. The best proof of the truth of a position is to be found in facts and air-tight logic and not in belittling one's opponents.

It is only fair to Romanes [23] to note the fact that in

[23] "Thoughts on Religion," pp. 114, 115.

his later years he realized that even scientists may be dogmatic and intolerant. This new light is evident from the following quotation: "As an ilustration of impure agnosticism take Hume's *a priori* argument against miracles, leading on to the analagous case of the attitude of scientific men towards modern spiritualism. Notwithstanding that they have the close analogy of mesmerism as an object-lesson to warn them, scientific men as a class are here quite as dogmatic as the straightest sect of theologians."

The unfortunate attitude of many physical scientists toward their opponents is pointed out by Hodge:[24] "The third cause of the alienation between religion and science is the bearing of scientific men towards the men of culture who do not belong to their own class. When we, in such connections, speak of scientific men we do not mean men of science as such, but those only who avow or manifest their hostility to religion. There is an assumption of superiority, and often a manifestation of contempt. Those who call their logic or their conjectures into questions, are stigmatized as narrow-minded, bigots, old women, Bible worshippers, etc."

Professor Huxley thought that metaphysicians and theologians should not dabble in science, yet he was only to ready to air his views on Biblical exegesis—witness his "Lay Sermons"—and on Biblical criticism, as shown in his discussion of Agnosticism. It is worthy of notice that his authorities in the latter field are Renan, Baur, Strauss and others of that school. Nor is he always accurate in his references to his authorities, as is pointed out by Henry Wace in "Christianity and Agnosticism."[25]

If the physical scientists who are carrying on the evolutionary propaganda were satisfied to confine themselves

[24] "What is Darwinism?" pp. 134-135.
[25] Pp. 77 ff.

to their own special field there would be little reason for those who accept the Christian religion attacking the evolutionists in their own field. But when the same scientists adopt a philosophy opposed to all man's moral and religious interests, when they attempt to brush aside the religious convictions and institutions which have a sound basis in experience, in reason, and in historical facts, the conservative thinker feels that it is time to examine the grounds on which such a revolutionary philosophy is based.

When some conservative thinker makes a study of the logic and scientific methods employed in the field of the physical sciences, he is told that he is not a scientist and that he is incompetent to give an intelligent opinion in that field. But is such a position tenable? There is no question but that the array of facts presented by the different sciences is bewildering. But facts do not constitute either a science or a philosophy. Facts must be classified and related, their causes must be ascertained, so far as possible. This involves reasoning. All this reasoning is commonly known as scientific method. The various methods vary in their scientific value. Some of them have merely conjectural and tentative value, others give results that are more probable, some are quite conclusive in character. Any well informed student of logic is a competent judge as to the value of the reasoning employed. The scientist is a specialist in ascertaining facts. That furnishes no guarantee that he is an expert reasoner. Too often he is not. When one finds that the logical stock in trade of a particular scientist consists almost entirely of conjecture and analogy, there is good reason for contesting the conclusiveness of his results.

A study of the scientific methods employed by Darwin, Spencer and their co-laborers in the field of the physical sciences has shown that the reasoning employed by them

was of the loosest and most inconclusive sort. What was found true of them is equally true of their disciples today. There is certainly, then no justification for attempting to apply their philosophy in other fields before it is well established in the field of the physical sciences.

But the unbelieving scientists attempt to apply their philosophy to all fields of knowledge, especially to that of religion. While deprecating the entrance into their fields of those trained in other lines of study and research, they themselves do not hesitate to invade the field of theology and religion. Since they are not first-hand investigators in this field, from what source do they get their views of the Bible and Christianity? They naturally accept and transmit, not the views of conservative scholars, but those of the destructive critics who belong to the same philosophical school with themselves. It cannot be too frequently reiterated that materialistic evolution and German destructive criticism are cut out of the same antisupernatural cloth. Strauss[26] praises Darwin for "having effaced miracle from our conception of the world," and Huxley appeals to Strauss when he wishes to prove that the New Testament is not historical.

Just one more reference to arrogancy from Sir Robert Anderson[27] who quotes from Professor Sayce:[28] "The arrogancy of tone adopted at times by the higher criticism has been productive of nothing but mischief; it has aroused distrust even of its most certain results, and has betrayed the critics into a dogmatism as unwarranted as it is unscientific. Baseless assumptions have been placed on a level with ascertained facts, hasty conclusions have been put forward as principles of science, and we have been called upon to accept the prepossessions and fancies

26 "The Old Faith and the New," vol. II, p. 23.
27 "Christianized Rationalism," p. 39.
28 "Higher Criticism and the Monuments," p. 5.

of the individual critic as the revelation of a new gospel. If the archaeologist ventured to suggest that the facts he had discovered did not support the views of the critic, he was told that he was no philologist. The opinion of a modern German theologian was worth more at all events in the eyes of his school than the most positive testimony of the monuments of antiquity."

The quotations given go to show a widespread prevalence of this intolerant and dogmatic spirit, both in the field of the physical sciences and in the allied field of destructive criticism.

While I am primarily concerned in proving the existence of the dogmatic spirit, I venture to offer an opinion as to why it exists. The advance in scientific knowledge has been so great within the last seventy-five years that many men have come to believe that all things are possible to the human mind. The theory of man's sufficiency constitutes the major premise of much of the thinking of the day.

Whatever may be the reason for such intolerance and dogmatism, this much is certain; if a man cannot bear fair and reasonable criticism of his views, he leaves himself open to the suspicion that his views do not rest on a solid foundation of facts.

Another weakness of evolutionary resoning or argument that frequently manifests itself is a tendency to misrepresentation.

Too often an opponent's view is caricatured rather than fairly stated. It is well to remember that ridicule and caricature are not logical methods of refutation. A very common way of representing the view of those who believe in the immediate creation of man is to ridicule it either openly or by implication.

The editor of a religious periodical representing a

church that is confessedly evangelical in belief is reported in The Presbyterian[29] to have said: "I would rather think that we came from the monkey than from mud." If a man of average intelligence, the speaker must have known that he was misrepresenting the evangelical doctrine of creation. The temptation to say something clever often leads men to say thoughtless things. It seems, also, to be a reflection on the Biblical account of creation. One could understand how Huxley could use such language, but it sounds strange coming as it does from one who assumes to be a leader in shaping Christian thought. Flippancy and misrepresentation should have no place in the discussion of serious moral and religious problems.

I have previously referred to LeConte's profession of deep interest in harmonizing science and religion. This does not prevent him from referring to the Christian belief in the immediate creation of man, by implication at least, as the 'mud-pie theory.' LeConte[30] says: "There are three theories concerning the origin of the individual. The first is that of the pious child who thinks that he was made very much as he himself makes his dirt-pies; the second is that of the street gamin, or of Topsy, who says: 'I was not made at all, I growed'; the third is that of the most intelligent Christians—i. e., that we were made by a process of evolution."

There can be no reasonable doubt but that the first view mentioned, that of "the pious child" is intended to represent the historic view of the Church down through the ages—a view still entertained by many men of the broadest scholarship.

The third statement that the evolutionary view of man's origin is held by the most intelligent Christians, is not true. It is simply an exhibition of arrogance.

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[29] August 2, 1923.
[30] "Evolution and Its Relation to Religious Thought," p. 292.

A few lines farther down, LeConte has occasion to refer to the views of "many pious persons" in regard to the origin of species. Piety seems to be in bad favor with LeConte.

There is some of the same spirit shown by M. J. Savage when he says: "I can sympathize with a man who shrinks from recognizing the ape as among his poor relations, particularly if there is a family likeness that he fears will be discovered; but really we must put prejudice to one side; this is a matter not of feeling, but of fact. I, for one, am ready to think it far more wondrous and honorable that my body should have come to its present perfection by the marvelous pathway of the animal world, than that it came straight from the slime and the mud. Which is the more honorable material—mysterious, complex life, or dirt?"[31]

I am at a loss to understand why there should be so many references to mud and dirt when the Bible account of the creation of man is referred to by evolutionists. It is quite generally known—even by those who believe in the Bible—that all the physical elements found in man's body are also found in the earth. Whether man's body was created immediately from physical matter or whether it came to its present form "by the marvelous pathway of the animal world," its relation to "the slime and the mud" would remain the same. This being the case, one is forced to believe that such writers as Mr. Savage are simply throwing 'mud' at the Biblical account of creation and at those who accept it. Mr. Savage has a tendency to ignore the agency of God in the account of creation as found in Genesis. Others who refer to the divine agency involved in creation, represent God as a human potter shaping a body from clay. There is nothing in the Bible story, or, so far as I am aware, in the conservative Christian belief that corresponds with such a picture.

[31] "The Religion of Evolution," p. 82.

Another typical example of misrepresentation is to be found in Rice's "Christian Faith in an Age of Science":[32] "When we come to think of the Bible, not as a magical book, made all at once, and dropped upon the earth like the heaven-descended idols of pagan superstition, but rather as the record of the human life and experience through which God was revealing himself; when we feel in its living pages the pulsations of the hearts of men who were struggling with the evil of their times, and striving to live the truth which had been revealed to them; when we recognize the intense humanity of the Bible; it acquires for us an interest which the impersonal and inerrant book of post-Reformation dogma could never have."

Professor Rice is entitled to conceive of the Bible as he does, but it hardly seems consistent with the spirit of truth and fairness to represent his opponents—even by implication or insinuation—as thinking of the Bible as "a magical book, made all at once, and dropped upon the earth like the heaven-descended idols of pagan superstition." Such caricatures can produce no harm in the case of thoughtful and mature Christian men and women —unless there is harm in a feeling of exasperation and indignation at such travesties on conservative views of the Bible—but they do raise doubts in the minds and weaken the faith of young men and women who do not realize how baseless such representations are.

It is such misrepresentation—intentional or otherwise —that vitiates so much of the evolutionary literature bearing on the question of the origin and nature of the Bible.

In presenting the foregoing examples of misrepresentation, I have avoided, so far as possible, the spirit manifested in the authorities referred to; and, to make assur-

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[32] Page 390.

ance doubly sure, I have quoted at considerable length from their writings in order to show that I have not misconstrued their meaning.

I shall consider just one more of the many faulty or weak forms of reasoning employed in the support of the evolutionary theory. I refer to deductive reasoning. Is deductive reasoning not a legitimate form of proof? There is nothing more legitimate in its proper sphere. Properly used it has all the validity of mathematical reasoning. Deductive reasoning is a comparatively simple affair. If the premises are true beyond question there is little excuse for a false conclusion. The errors resulting from deductive reasoning in the physical sciences do not, as a rule, arise from illogical conclusions. They arise from the too common tendency to make deductions from a major premise not sufficiently established. In other words, the abuse of deductive reasoning in the support of the evolutionary hypothesis arises from the assumption of that which needs to be proved. The conclusion, therefore, must logically be as weak as the premises. The fault is in the resort to deduction from a universal premise which has not itself been established by inductive reasoning from facts.

This faulty form of reasoning is illustrated by LeConte[33] when he says: "The words *evolutionism* and *evolutionist* ought not any longer to be used, any more than *gravitationism* and *gravitationist;* for the law of evolution is as certain as the law of gravitation. . . . It will be seen from the preceding chapter that we regard the law of evolution in its wider sense, viz., the derivative origin of all forms, organic or other, as axiomatic, and therefore requiring no further proof . . . . . We believe

[33] "Evolution and Its Relation to Religious Thought," pp. 66, 67.

that to the scientific mind there is no other rational mode of looking at the subject of the origin of organic forms. To such a mind, therefore, all that follows is but the deductive application of that law in the explanation of the phenomena of organic nature. But it takes time for the popular mind to readjust itself to new and revolutionary truth. Many men require further *special proofs* of the derivative origin of organic forms. Even to those who accept evolution, these proofs will be interesting as illustrations of such origin."

Is LeConte justified in his assertion that "the law of evolution is as certain as the law of gravitation"? Or even more certain, as he affirms,[34] "It is not only as certain as—it is far more certain than the law of gravitation, for it is not a contingent, but a necessary truth like the axioms of geometry"?

How does LeConte reach this law or truth which is so necessary and axiomatic? After stating five arguments, all of which are doubtful or inconclusive in character, he says:[35] "May we not, then, safely generalize, and make the law universal? Is not this a sufficient ground for confident induction? Even though some facts are still inexplicable, is that a sufficient reason for withholding assent to a theory which explains so much?"

Are axioms based on interrogations? It would seem so. Of course, LeConte goes on to furnish proofs or illustrations, but these are only too often proved by reference to the general law which itself need proof. As an illustration of this we have his paroxysmal theory of evolution. The imperfections of the geological record seem to discredit Darwin's view of a gradual evolution by means of infinitely small changes. LeConte meets the difficulty by means of his theory of paroxysmal changes.

[34] Ibid., p. 275.
[35] Ibid., p. 63.

By this he means that while causes or forces are constant, the effects—in the form of phenomena—are not uniform but paroxysmal. The logic seems to be as follows: Evolution is axiomatic, geology does not furnish a nicely graduated series of forms, therefore the evolution must be paroxysmal.

Iverach[36] gives us an example of deductive reasoning taken from Herbert Spencer's "Principles of Sociology":[37] "Mr. Spencer's method of dealing with the primitive man is peculiar. 'Of the ideas current among men now forming the rudest societies there are most likely some which have descended by tradition from higher states. These have to be discriminated from truly primitive ideas, so that simple induction does not suffice. To the deductive method there are obstacles of another kind equally great. Comprehension of the thoughts generated in the primitive man by converse with the surrounding world can be had only by looking at the surrounding world from his standpoint.' But as this is declared by Mr. Spencer to be impossible—'Though we are incapable of reaching the conception by a direct process, we may approach to it by an indirect process. The doctrine of evolution will help us to delineate primitive ideas in some of their leading traits. Having inferred, *a priori,* the character of those ideas, we shall be, as far as possible, prepared to realize them in imagination, and to discern them as actually existing'—it is scarcely necessary to make any remark on the logical character of this procedure. The primitive man will, of course, turn out to be the kind of creature required by Mr. Spencer's theory of evolution, and must be also of the kind which will fit in with Mr. Spencer's view of psychology."

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[36] "Evolution and Christianity," p. 213.
[37] Vol. I, pp. 96-98.

It is very evident that such a method of procedure leaves primtive man entirely at Mr. Spencer's mercy. He can shape him as he pleases. Of course, such a picture has no value—no claim to our credence—since the whole thing is a creation out of *a priori* materials.

It is logically and scientifically admissible to make a generalization by induction from a limited number of facts. But what value has such a generalization? It is merely tentative in character. It may be used as a basis for prediction. If the prediction proves true, that fact helps to establish the truth of the generalization.

However, the generalization is not an established truth and consequently can not be taken as a basis for any inferences as to facts. The example of deductive reasoning given from Mr. Spencer illustrates the abuse of deductive reasoning.

Even prominent advocates of the evolutionary hypothesis admit that much of the discussion engaged in by evolutionists has been deductive in character. Conn[38] in his work entitled "The Method of Evolution," published in 1900, says: "The evolution discussion of the forty years following Darwin has been largely one of deductive science. The formulation of the law of natural selection started an immense amount of speculation as to how it might act and what it would produce under certain conditions. A very large part of the discussion might be drawn directly from the law itself without any special appeal to nature for information. The younger naturalists are expressing themselves as dissatisfied with this method of study, insisting that if we are to advance any further in the subject it must be by inductive methods rather than deductive. We must leave our libraries and turn to nature to see what is actually going on, leave speculation and turn to observation."

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[38] Preface, pp. III, IV.

Here we have the admission that during approximately two-thirds of the time since the appearance of Darwin's theory of natural selection the method used by scientists in the study of evolution "has been largely one of deductive science." The scientists were so busy speculating as to how natural selection might act that they had no time to leave their easy chairs to find out whether the facts of nature supported the theory or not.

In the absence of facts needed to prove his theory, Darwin[39] was compelled to depend on deductive reasoning as a means of filling in gaps. This is well illustrated in the following quotation: "Every naturalist, who believes in the principle of evolution, will grant that the two main divisions of the Simiadae, namely the Catarhine and Platyrhine monkeys, with their sub-groups, have all proceeded from some one extremely ancient progenitor."

Here the theory of evolution—itself needing proof—is used as a basis for a deduction to the effect that the Old and New World monkeys are derived from a common stock.

Again Darwin[40] says: "The great break in the organic chain between man and his nearest allies, which cannot be bridged over by any extinct or living species, has often been advanced as a grave objection to the belief that man is descended from some lower form; but this objection will not appear of much weight to those who, from general reasons, believe in the general principle of evolution." We see how "the general principle of evolution" is used to cover up a very serious lack of evidence. Darwin used facts to prove his theory, and, in turn, he used his theory as a means of supplying facts. Nor is this the only gap that has to be filled. In the following sentence he says, "Breaks often occur in all part of the series, some

[39] "The Descent of Man," p. 150.
[40] Ibid., p. 152.

being wide, sharp, and defined, others so in various degrees."

The belief in "the general principle of evolution" helped Darwin to overcome his doubts based on the lack of evidence for his theory. An evolutionist now-a-days who would make such a damaging admission as to the difficulties in the way of proving the theory would be in danger of being *churched* and excommunicated by the leaders of the faith. John Burroughs and Professor Bateson drew fire from Henry Fairfield Osborn a year or two ago because they departed from the orthodox faith—as interpreted by Professor Osborn. Are not scientists of high repute to be allowed the right, by other scientists, to state their conclusions in the light of their knowledge of facts? Does evolution have a high priest, elected by himself or others, who is authorized to discipline and even excommunicate those who do not conform to the standards of the faith?

Tefft, in his "Evolution and Christianity"[41] quotes from Haeckel an admission that man's descent from a lower animal is merely a deduction from the theory of evolution. "The theory of descent," says Haeckel (History of Creation," vol. II, p. 357), "is, without doubt, a great inductive law, empirically based upon all biological experience. The theory, on the other hand, which asserts that man has developed out of lower, and in the first place out of ape-like, mamals, is a deductive law inseparably connected with the general inductive law."

In his "Riddle of the Universe"[42] Haeckel says, "For the purpose of our monistic philosophy, however, it is a matter of comparative indifference how the succession of our animal predecessors may be confirmed in detail. Sufficient for us, as an incontestable historical fact, is the important thesis that man descends immediately from

[41] Foot note, p. 190.
[42] Pp. 84, 85.

the ape, and secondarily from a long series of lower vertebrates. I have laid stress on the logical proof of this 'pithecometra thesis' in the seventh book of the General Morphology; 'The thesis that man has been evolved from lower vertebrates, and immediately from the simiae, is a special inference from the general inductive law of the theory of descent.' "

Haeckel admits that when a certain step in the evolutionary process cannot be established by an appeal to facts he supplies the missing facts by deductive reasoning. Any one who knows the first principles of logical reasoning knows that such a procedure is utterly illogical and therefore unscientific. Facts cannot be created by deductive reasoning from an uncertain generalization.

The examples cited would seem sufficient to prove that the leaders in the evolutionary camp have used deductive reasoning in a thoroughly unwarranted way. Evolution cannot be established till all the links in the genetic chain of descent, linking man up with the lower animals, have been discovered, and when they have been discovered it will not be necessary to supply links by an illogical use of deductive reasoning.

CHAPTER IV

ORIGINS

Almost every going concern had to have a beginning. There are many things that are fairly easy to keep going if once we get them started—for example, bad habits. Everything now going must have been going from eternity or it must have started at some definite time.

But what is it that is now going? We are concerned not only with the beginning of the process but also with that which is subject to change.

Where do the evolutionists get the stuff or matter which is to undergo a process of evolution?

Professor Flint[1] says: "Creation is the *only* theory of the *origin* of the universe. Evolution assumes either the creation or the self-existence of the universe. The evolutionist must choose between creation and non-creation. They are opposites. There is no intermediate term. The attempt to introduce the Unknowable can lead to no result; for unless the Unknowable is capable of creating, it can account for the origin of nothing. All attempts to explain even the formation of the universe, either by the evolution of the Unknowable or by evolution out of the Unknowable, must be of a thoroughly delusive character. The evolution of what is known can alone have significance either to the ordinary or scientific mind. Nothing can be conceived of as subject to evolution which is not of a finite and composite nature. Nothing can be evolved out of a finite and composite existence which was not

1 "Theism," Appendix, pp. 390, 391.

involved in it. And what gives to anything its limits and constitution must be more perfect than itself."

We must take our choice then between creation and eternal existence. Spencer's Unknown seems to defy classification. It is a hybrid in the philosophical world —a cross between matter and spirit. Potentially it has all the qualities of spirit, in behavior it conforms to the laws of matter even in its highest manifestations. From the standpoint of possible criticism there is an apparent wisdom in making the Unknown one's world ground, since it makes it possible to evolve anything from it without being charged with inconsistency. Such a world ground does not impress us as a profound philosophy, since it explains nothing.

Where, then, does the evolutionist get his stuff? If he is a deist, he gets it by creation. If he is a materialist or an idealist or a Spinozist he assumes it to be eternal. If he is a consistent agnostic evolutionist he must take it as he finds it, since he cannot consistently know anything about its origin as that lies outside of the reach of experience.

The materialist starts with matter. And matter it must remain to the end. Whether it is conceived of as self-existent or as created by the deist's God the result is the same. The impossibility of there being more in the effect than existed in the cause is pointed out by Des Cartes as quoted by Flint:[2] "It is manifest by the light of nature that there must at least be as much reality in the efficient and entire cause as in its effect; for whence can the effect draw its reality if not from its cause? And how could the cause communicate to it this reality unless it possessed it in itself? And hence it follows, not only that what is cannot be produced by what is not, but likewise that the more perfect—in other words, that which

[2] Op. cit., Appendix, p. 391.

contains in itself more reality—cannot be the effect of the less perfect."—Des Cartes, "Meditations," III.

The position taken by Des Cartes seems to be not only highly reasonable but a necessary truth.

It might be well at this point to call attention to the fact that to the materialistic thinkers there was nothing present in the original gaseous stuff out of which the universe is supposed to have evolved but matter—no mind or spirit of any sort. Matter can not sustain the strain placed upon it by the materialistic philosopher.

Matter, as defined by the Standard Dictionary is "The form of being or substance that is characterized by extension, inertia, weight, etc., or in general, by the properties cognized through the senses and contradictory to those of spirit; extended substance." I know it is difficult to formulate a definition of matter that would meet all possible criticisms, especially in view of the scientific advances that have been made in recent years, revolutionizing the older conceptions of matter. However, the definition quoted furnishes a satisfactory working definition and one suited to bring out the difference between matter and spirit.

In the light of such a definition one finds it difficult to understand how any thinker can be satisfied with matter as a means of explaining mind and intelligence. In fact some of the leading scientists of modern times started out as materialistic monists only to go over later to dualism—a recognition of spirit as well as matter. We have Haeckel's authority for the statement that it is true of a number of his contemporaries, viz., Wundt, DuBois-Reymond, Virchow, and Karl Ernst Baer. He refers to others having undergone, as those men did, an entire change of philosophical principles. Haeckel attributed this change of view in his fellow scientists to a "gradual decay of the brain." It is interesting to note that he himself is

reported to have abandoned materialistic monism for dualism a few years before his death.

Professor Helmholtz has estimated that this primitive nebulosity out of which the earth is supposed to have evolved "was of such tenuity that several million cubic miles of it would scarcely weigh one grain."[3] As to the size of the atoms, it has been estimated that it would require two hundred and fifty thousand years for a man to count those in the head of a pin. The atom is reduced to ions. In size the atom is said to be to the ion as a cathedral is to a bird shot.

That materialistic thinkers are not consistent is easily shown. As William Hallock Johnson says, [4]"Primitive star-dust is endowed with the attributes of life, of consciousness, and even of purpose and morality." Materialism almost inevitably lands in pantheism.

The idealistic thinker starts with mind. He assumes it to be self-existent and therefore eternal. But in what form? As intelligent, self-conscious mind? No, but mind in a latent impersonal form, mind asleep in a dreamless sleep, a trance. How long did this latent state continue? Why did it ever change into anything else? Will it ever lapse again into unconsciousness, a second forgetfulness?

If materialism were true, it would seem most reasonable to accept the theory that cosmic history has consisted of a succession of cycles, that the universe runs its course only to perish and then to rise phoenix-like from its own ashes.

The improbability that there has been but one evolution, instead of a long succession of evolutions, has been pointed out by Professor Lewis as quoted by Flint:[5]

[3] Ballard: "The Miracles of Unbelief," p. 58.
[4] "The Christian Faith Under Modern Searchlights," p. 80.
[5] Op. cit., pp. 392, 393.

"Think of it! An endless evolution, an eternal working, an infinite causation, and yet an effect so finite. Nature has been working upward from eternity, and has just passed the long-armed ape who begat Prognathus, as Prognathus begat the troglodyte homo. What becomes of our doctrine of progress? As sure as mathematics, it should have been all evolved, all that we now have, over and over again—all *out* or far more out than has come out, incalculable ages ago. An eternal antepast of progressive working. To what a height should it have arisen! It should have transcended all our ideals. The most exalted being should have been reached, the most exalted that our minds can conceive, instead of this creature man, so poor, so low; for you will bear in mind that I am speaking of him as measured by no higher scale of value than that afforded by this physical hypothesis—man evolved from nebular gas—man just coming out of darkness, and so soon to return to darkness again —*e tenebris in tenebras.*"

The evolutionary philosophy prevailing today is almost exclusively of a materialistic character. Few hard-headed persons—and most people *are* hard-headed—have been deeply impressed by an idealistic or transcendental evolution. Consequently I shall confine myself almost entirely to the discussion of materialistic evolution. Some of the evolution of the day is frankly materialistic, while some of it is practically so though concealing itself under the guise of Spencer's Unknowable or Spinoza's Substance.

Suppose we have the matter which is to furnish the basis for an evolution. How does it get started on its program of world building?

Democritus, Epicurus, and other ancient materialistic thinkers started with atoms in motion. These atoms, while chemically the same, differ in form, size and

weight. The atomists conceived of these atoms as moving downwards, and Epicurus assumed that they deviated from the perpendicular line by chance, forming larger bodies.

Herbert Spencer starts with the particles of matter in state of unstable equilibrium—or in other words, so nicely balanced that the slightest force would be sufficient to start a movement that would result in the entire series of changes that constitute the history of the world. This is a very good point for a physicist to start from, but not for a philosopher. But consider for a moment what Spencer asks to be granted as a starting point—matter, not the ordinary sort but matter with all the characteristics of both matter and mind.

And then how nicely poised are these particles, not by their Creator, according to Spencer, for to presume to know would be to know the Unknowable. And yet the whole mass is deadlocked for there is nothing to disturb the equilibrium, however unstable. And as Ormond[6] remarks, "It is true that Mr. Spencer points to what is termed the instability of the homogeneous as a negative cause of the processes which are set up in evolution. But as he represents it, this instability means simply a condition of rest that is very easily disturbed, so that only a very little cause is needed to do the business. The vital point, however, is that this very little cause has not been provided for in the homogeneous mass. It lies there motionless and without positive tendency, and is by hypothesis the whole universe. There is no reason in the mass itself why any change series should be set up, and we can only wring our hands and pray that the very smallest accident possible may happen to break the deadlock. It is plain, however, that if anything does

[6] "Foundations of Knowledge," p. 394.

happen it will be a rank miracle, and not includable in the homogeneous conditions of the universe."

It has been suggested that the unstable equilibrium assumed by Spencer was so delicate that the vibrations of a mosquito's wing would be sufficient to set the particles in motion. There is only one difficulty in the supposition and that is to find the mosquito.

A very little thought is sufficient to convince one that Spencer's picture of the beginning of the evolutionary process is an extremely fantastic and improbable one and thoroughly unsatisfactory from the standpoint of philosophy. Its philosophic weakness is pointed out by Ormond in the chapter from which I have just quoted.

We need to remember that the matter and energy with which the materialistic evolutionists start and which seem so simple have marvellous potentialities. Clodd[7] quotes Tyndall as saying, "The genius of Newton was potential in the fires of the sun."

Material energy or force—as contrasted with spiritual—does not seem sufficient to account for all the facts in the universe. There is much that cannot be brought under the category of merely physical energy. What then is to be done? Physical energy must undergo an evolution.

LeConte[8] gives us his theory as to what one might call "The descent of matter." "In the history of the evolution of the cosmos, the forces of nature have appeared successively and suddenly when the conditions became favorable. There was a time in the history of the earth when only physical forces existed, chemical affinity being held in abeyance by the intensity of the heat. (Footnote: All chemical compounds are dissociated by sufficient heat.) By gradual cooling, chemical

[7] "Pioneers of Evolution," p. 216.
[8] "Evolution and Its Relation to Religious Thought," p. 316.

affinity at a certain stage came into being—was born, a new form of force, with new and peculiar phenomena, though doubtless derived from the preceding. Ages upon ages passed away until the time was ripe and conditions were favorable, and life appeared—a new and higher form of force, producing a still more peculiar group of phenomena, but still, as I believe, derived from the preceding. Ages upon ages again passed away, during which this life force took on higher and higher forms—in the highest foreshadowing and simulating reason itself—until finally, when the time was fully ripe and conditions were exceptionally favorable, spirit, self-conscious, self-determining, rational, and moral, appeared —a new and still higher form of force, but still, as I am persuaded, derived from the preceding."

The least critical reading of this quotation is sufficient to show that the evolution of life, sentiency, and self-conscious, self-determining spirit from physical force is a mere matter of faith and not a demonstrable fact. It is an inference from the *axiomatic* law of evolution and therefore received on faith—just as the axiom itself was. The closest approach to proof offered by LeConte is analogy.

Clodd[9] says of Spencer that he treats the entire cosmic process as a problem in mechanics, interpreting "the phenomena of life (excluding the question of its origin), mind, and society in terms of matter and motion."

We have a clear-cut statement of the same idea in Giddings[10] "The Principles of Sociology." "Social evolution is but a phase of cosmic evolution. All social energy is transmitted physical energy . . . the original causes of social evolution are the processes of physi-

[9] Op. cit. p. 187.
[10] Pp. 363, 364.

cal equilibrium, which are seen in the integration of matter with the dissipation of motion, or in the integration of motion with the disintegration of matter . . .[11] Accordingly if we speak of psychical energy, we use for convenience a term that can denote nothing more than a special form of physical energy, namely: the nervous energy that is directly associated with consciousness. Briefly, then, although social phenomena are for the most part conscious phenomena, there is no social activity that is not physical activity . . .[12] Social activity follows the line of least resistance . . . The line of least resistance also determines occupations, the course of exchange, the lines of communication and the movements of labor and capital, legislative and administrative policy, and the directions of religious, scientific and educational movements."

Giddings dependence on Spencer is not only sufficiently evident from his discussion, but is repeatedly admitted by reference to Spencer's "First Principles."

Those who believe in unselfishness, that men may and do battle for the right, in heroism and the more rigorous virtues generally, will find it difficult to harmonize their ethical theories with Giddings philosophy. Following the line of least resistance does not seem a very promising method of attaining a high type of character.

That Huxley[13] held to the same theory of the universe as that accepted by LeConte and Giddings is shown by the following: "Natural knowledge tends more and more to the conclusion that all the choir of heaven and furniture of the earth are the transitory forms of parcels of cosmic substance winding along the road of evolution, from nebulous potentiality through endless growths of

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[11] Ibid. p. 366.
[12] Ibid. pp. 369, 370.
[13] "Evolution and Ethics," p. 60.

sun and planet and satellite; through all varieties of matter; through infinite diversities of life and thought; possibly through modes of being of which we neither have a conception, nor are competent to form any, back to the indefinable latency from which they arose. Thus the most obvious attribute of the cosmos is its impermanence. It assumes the aspect not so much of a permanent entity as of a changeful process in which naught endures save the flow of energy and the rational order which pervades it."

In this quotation, as in LeConte's imaginary descent of spirit from physical energy, we see what latitude the evolutionary thinkers allow themselves in picturing processes supposed to occupy aeons of time in their development. There is much that men of today do not know, and like the Greeks of more than two thousand years ago these same men are fond of spinning world histories out of their inner consciousness. In form and spirit Huxley's imaginative flight has all the marks of the *divine afflatus* and shows his affinity with the poets. The quotation given should not be mistaken for a statement of scientific knowledge. Such effusions are interesting as an expression of opinion, but they are not even to be classed as illustrations of the scientific use of imagination. They are simply an expression of philosophic faith.

I have cited these views to illustrate the highly hypothetical character of the argument for the evolution of physical energy. Such theories have no solid basis in fact. Why, then, are they advanced if not grounded in facts? Because they are necessary if one starts out from the standpoint of materialistic monism—and it is well known that "necessity knows no law."

It now remains to consider briefly the direction and limits of change.

The ancient evolutionists started with matter in a state of chaos. The modern evolutionary theory is essentially the same in its presuppositions.

Darwin is supposed to have discredited the idea of design in the production of the universe. The problem, then, is to explain the orderly universe in terms of change, without design. If one is asked to explain the mechanism of a watch and its adaption to keeping time, it is not considered a satisfactory explanation if one says that it just happened by chance to attain its present form and function. Nor can the origin of the maker of the watch be any more satisfactorily explained by such an answer. But chance could not produce a mechanism much less an organism—even though the matter involved had been specially designed. Such a hypothesis is too much of a strain on our credulity. Much less can the doctrine of chance be considered sufficient if the matter itself does not express design. The atom itself gives evidence of being a manufactured product. Nor does the demand for almost unlimited time make the chance theory any more probable. Mere chance plus time cannot produce progress. Chance combinations carried through eternity could produce many variations—but variations only within certain limits. Chemical elements may be combined according to many different formulae, but the result is never anything more than a chemical combination. There is no evidence to prove that mere chemical combination ever produced an organism, even of the lowest order. The construction by mere chemical combination of an organism capable of functioning either as plant or animal is outside the sphere of ascertained fact. The suggestion that protoplasm can be explained in terms of chemistry, because its chemical composition can be determined, is just as convincing as to attempt to explain a text-book on evolution in terms of metal

type which may be found in any well equipped print shop. It would not be doing justice even to an evolutionary thinker to explain his book in terms of mere type.

To sum up: if the materialistic thinker appeals to chance alone, his philosophy is inadequate; if he introduces anything more than chance he repudiates his materialism. The conclusion is obvious.

CHAPTER V

WHENCE COMES LIFE?

We have found that the materialistic thinkers have a hard time accounting for matter. They are at a loss to find a substance that is mere matter—nothing but matter —and at the same time adequate to account for all that we find in the world. They also have difficulty in persuading matter to delay the beginning of its evolution so that it would not run its course before our time. In fact, the most reasonable theory for the materialistic thinkers to adopt is that, since eternity is such a long time, evolution has already taken place an innumerable number of times—in other words it is now on its *nth.* time around. The need for some form of direction to pilot it out of chaos and along an orderly road was also pointed out.

But suppose we have the material and have succeeded in getting it started on the upward way, what are some of the difficulties to be encountered? It is possible that the evolutionist has some hard sledding ahead of him. We need to keep in mind that the road leads *upward.*

In replying to Mr. Bryan's articles, "God and Evolution,"[1] Professor Henry Fairfield Osborn[2] says, "I had the good fortune to fall under the influence of James McCosh, natural philosopher and divine, who in his lectures on 'Christianity and Positivism' accepted evolution, with most of its implications, in the year 1876."

My copy of "Christianity and Positivism" is dated

[1] New York Times, Sunday, February 26, 1922.
[2] New York Times, Sunday, March 5, 1922.

1874. On the title pape, we are informed that these lectures were "delivered in New York, January 16 to March 20, 1871, on the Ely Foundation of the Union Theological Seminary." Unless the lectures were revised between 1874 and 1876, Professor Osborn's copy of this work must be the same in its contents as the one I possess. Such a revision seems highly improbable.

It is a pleasure then to note a few of the difficulties in the way of the evolutionary theory as pointed out by one who "accepted evolution with most of its implications in the year 1876."

The difficulties in the way of the evolutionists as McCosh[3] saw them were:

"1. Chemical action cannot be produced by mechanical power.
2. Life, even in its lowest forms, cannot be produced from unorganized matter . . . . .
3. Protoplasm can be produced only by living matter.
4. Organized matter is made up of cells, and can be produced only by cells. Whence the first cell?
5. A living being can be produced only from a seed or germ. Whence the first vegetable seed?
6. An animal cannot be produced from a plant. Whence the first animal?
7. Sensation cannot be produced in insentient matter.
8. The genesis of a new species of plant or animal has never come under the cognizance of man, either in pre-scientific or scientific time . . . . .
9. Consciousness—that is, a knowledge of self and its operations—cannot be produced out of mere matter or sensation.
10. We have no knowledge of man being generated out of the lower animals.

[3] "Christianity and Positivism," Appendix, p. 344.

11. All human beings, even the savages, (*supra,* pp. 48, 138; *infra,* Art. II) are capable of forming certain high ideas, such as those of God and duty. The brute creatures cannot be made to entertain these, by any training.

"With such tremendous gaps in the process, the theory which would derive all things out of matter by development is seen to be a very precarious one."

Surely Professor Osborn could derive little consolation, not to say confirmation for his views, from what I have just quoted.

Undoubtedly Dr. McCosh was greatly influenced—I would say *misled*—by the claims of the evolutionary scientists of his day. But even as late as 1890, McCosh[4] argues that there are seven points at which divine power must be evoked. These are the appearance of matter, light, life, sensation, instinct, intelligence, and morality.

"We believe that there must have been an act of creation out of nothing at the beginning; and the probable conclusion is that epochal creations have been continued, not interfering with the previous work, but in the way of multiplying and expanding it indefinitely."

My reason for citing Dr. McCosh's views at such length is that Professor Osborn has so recently tried to use him as a support for the theory of evolution.

To get back to our question, Whence comes life?

Darwin[5] says, "There is grandeur in this view of life, with its several powers, having been originally breathed by the Creator into a few forms or into one, and that whilst this planet has gone circling on according to the fixed law of gravity, from so simple a beginning endless

[4] "The Religious Aspect of Evolution," Enlarged and Revised Edition, pp. 47-55.

[5] "Origin of Species," vol. II, p. 186.

forms most beautiful and most wonderful have been and are being evolved."

As can be seen from this statement, Darwin balked at the spontaneous generation of life—the derivation of life from the non-living.

Bettex[6] reminds us that the evolutionists can no more dispense with miracles than Christianity can. "Man can not get away from miracles; even the materialist believes in them. Not in those, it is true, which happened eighteen hundred years ago, and to which many trustworthy men bore witness, more than one of whom sealed that witness with his life; but in such as happened millions of years ago, which were observed by none who could testify to their genuineness. That he may not have to believe in a creation he believes in an unproved spontaneous generation, or imports at great expense life-germs from other worlds. That Christ raised the dead, made an organism which had lived live again, he does not believe; but he does believe that organisms were generated by dead matter."

Whether one is a Christian or a materialist he is called on to believe in occurrences that cannot be accounted for on the basis of the merely physical forces about us. The Christian can reasonably account for these super-physical facts, because he explains them by referring them to a sufficient cause. The materialistic evolutionist cannot reasonably account for these super-physical facts because he does not posit a cause adequate to explain them. They do not fit into his philosophy. The Christian needs and therefore invokes a supernatural agency to account for the origin of life; the materialist also needs but does not invoke a supernatural agency at this point in his program. From the standpoint of philosophy the Christian position is adequate; the other is inadequate.

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[6] "Science and Christianity," pp. 147, 148.

When Bettex refers to the importation of life-germs from other worlds at great expense, he seems to have Sir William Thomson in mind.

Sir William Thomson advanced the idea that life came to the earth on a meteorite. The intense cold and dryness of interstellar space has been urged as militating against this view. This view could not be urged as an ultimate explanation of the origin of life, supposing it could survive transportation under such difficulties.

However, J. W. Dawson[7] does not take Sir William Thomson so seriously as some have done. He says, "Under that strange hypothesis of the origin of life from meteors, with which Sir William Thomson closed his address at a late meeting of the British Association, there was concealed a cutting sarcasm which the evolutionists felt. It reminded them that the men who evolve all things from physical forces do not yet know how these forces can produce the phenomena of life even in its humblest forms."

The difficulty involved in getting life started seems to have driven Arrhenius to accept the alternative that life is eternal.[8] Arrhenius' desperate resort indicates to what lengths the evolutionists are compelled to go in order to avoid supernatural agency in the production of life.

Clodd[9] in referring to Huxley's "support of Tyndall's creed as to the fundamental unity of the vital and non-vital," quotes from the former's Presidential Address to the British Association in 1870 as follows: "Looking back through the prodigious vista of the past, I find no record of the commencement of life, and therefore I am devoid of any means of forming a definite conclusion as

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7 "The Story of the Earth and Man," pp. 325, 326.
8 William Hallock Johnson, "The Christian Faith Under Modern Searchlights," p. 76.
9 "Pioneers of Evolution," pp. 216, 217.

to the conditions of its appearance. Belief, in the scientific sense of the word, is a serious matter, and needs strong foundations. To say, therefore, in the admitted absence, that I have any belief as to the mode in which the existing forms of life have originated, would be using words in a wrong sense. But expectation is permissible where belief is not; and if it were given to me to look beyond the abyss of geologically recorded time to the still more remote period when the earth was passing through physical and chemical conditions which it can no more see again than a man can recall his infancy, I should expect to be a witness of the evolution of living protoplasm from non-living matter, I should expect to see it appear under forms of great simplicity, endowed, like existing fungi, with the power of determining the formation of new protoplasm from such matter as ammonium carbonates, oxalates, and tartrates, alkaline and earthy phosphates, and water, without the aid of light. That is the expectation to which analogical reasoning leads me; but I beg you once more to recollect that I have no right to call my opinion anything but an act of philosophical faith."

Such is the ground for Huxley's faith—*not belief*—in the spontaneous origin of life. What sustained him in his faith? His acceptance of Tyndall's *creed*—a sinister word—and analogical reasoning. Surely wisdom is justified of her children.

Huxley, as we have noticed, believed that life arose spontaneously ages ago under conditions which can never be repeated. Others believe that the spontaneous production of life is going on today. But it is hardly necessary to try to decide which is right, since neither side has any evidence to offer in the way of proof.

Conn[10] says, "With all our search the essence and

[10] **"The Method of Evolution," p. 7.**

origin of life has thus far eluded our grasp. The scientist should go no further than the evidence leads him and should not indulge in too much philosophical speculation."

Weismann, while admitting that there is no evidence for the spontaneous generation of life, is very naturally unwilling to give it up. He says,[11] "I see no possibility of avoiding the assumption of spontaneous generation. It is for me a logical necessity." His argument for spontaneous generation is seen to be merely a deduction from the theory of evolution. A deductive inference from an unproved theory should not be taken as a fact.

Lord Kelvin,[12] in writing for the London Times, said: "Forty years ago I asked Liebig, walking somewhere in the country, if he believed that the grass and flowers which we saw around us grew by mere chemical forces. 'No, no more than I could believe that a book of botany describing them could grow by mere chemical forces.' "

We find the evolutionists hard put to get anywhere with their program of development. They hardly get under way until they encounter the problem as to the origin of life. Unless this difficulty can be cleared up the theory is doomed to an early death. Logically and scientifically it has no reason for surviving, and they are quite within reason who hold that this theory—the child of the ancient Greek philosophers—has met its Waterloo. It does not promise well when a theory fails to stand the first real test to which it is subjected. And that failure is all the more serious because without life and living organisms there is nothing for natural selection, inheritance of acquired characteristics, and mutations to work on.

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[11] "The Evolutionary Theory," p. 366, quoted by Bishop: "Evolution Criticised," p. 232.

[12] Patterson, "The Other Side of Evolution," p. 24.

Howison, while believing in evolution as an accredited fact within the sphere accessible to science—the morphology and physiology of living beings—points out the error involved in trying to extend the theory beyond its legitimate field. He says,[13] "The extension of evolution from this limited and lowly scope in the region of life into a theory of cosmical reach, and, still farther, into a theory of the *origin* of life, and then of the origin of *mind,* is an act for which science furnishes no warrant whatever. The step into boundlessness is simply the work of philosophical speculation, as it always is."

Nor may the evolutionist of the agnostic, Spencerian type logically formulate any theory as to the origin of life, since the principles of agnosticism do not allow him to accept anything as true except on the evidence of experience.

We see, then, that the spontaneous generation of life, so necessary to the success of the evolutionary scheme, is not an ascertained fact, but a mere supposition or an inference from the general theory of evolution; and, further, that a consistent agnostic evolutionist—and all materialistic evolutionists must logically be agnostics—may not reasonably appeal to philosophy with any thought of accepting his own conclusion, since, by doing so, he is transcending experience.

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[13] "The Limits of Evolution," p. 11.

CHAPTER VI

MAN

Passing over a number of other difficulties encountered by the evolutionists, let us consider the origin of man.

Man's family tree, as constructed by Haeckel, is as follows: Monera, Amoebae, Synamoebae, Planaeada, Gastreada, Worms (Vermes), Primitive worms (Archelminthes), Soft Worms (Scolecida), Chorda-animals, Skull-less Animals (Arcrania), Jawless Animals (Cyclostoma), Primitive Fishes (Selachii), Amphibia, Primitive Mammals (Promammalia), Pouched Animals, Semi-Apes (Lemuroidea), Apes, Ape-Men, Man.

What is the scientific value of this wonderful 'tree'? Dawson[1] in criticizing this family tree says, "In this he attempts to give a series of the ancestors of man as developed in geological time; but of twenty-one groups which he arranges in order from the beginning of the Laurentian to the Modern Period, at least ten are not known at all as fossils, and others do not belong, as far as known, to the ages to which he assigns them. This necessity of manufacturing facts does not speak well for the testimony of geology to the supposed phylogeny of man. In point of fact, it cannot be disguised that, though it is possible to pick out some series of animal forms, like the horses already referred to, which simulate a genetic order, the general testimony of palaeontology is on the whole adverse to the ordinary theories of evolution, whether applied to the vegetable or to the animal kingdom."

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[1] "Modern Ideas of Evolution," pp. 145, 146.

Dawson's criticism of Haeckel's tree shows that it lacks the geological evidence without which it becomes a merely hypothetical construction—at least from the standpoint of paleontology. By no stretch of the imagination may it be conceived of as constituting scientific evidence. It hardly seems necessary to point out that Haeckel's tree does not have much to stand on, and that it gives evidence of being not the product of nature but rather of a carpenter who is trying to patch up a tree from materials collected from various sources.

It is frequently asserted by the defenders of the evolutionary hypothesis that evolution does not teach that man is descended from a monkey. It is more accurate to say that some evolutionists do and others do not attribute to man a simian ancestry. "Simian," of course, means the same thing as monkey, but does not sound quite so humbling to people of culture and refinement. This much can be said of those who do not trace man's ancestry to the monkey, they can find no other animal so nearly approaching man in physical make-up as the monkey does. The evolutionist may go further and do worse. Surely it is not wise to turn down a sure thing like the monkey, because it is not entirely satisfactory, in favor of a non-existent and purely hypothetical one. It is quite probable that the rejection, by many, of a monkey ancestry for man is due to a lack of geological evidence in its favor.

In a passage already quoted from Darwin's[2] "Descent of Man" it was shown that he traced man's ancestry back to an Old World monkey.

Haeckel, as quoted by Townsend[3] says, "Our ape-like ancestors are long since extinct. Perchance their fossil remains may sometime be found in the tertiary deposits

[2] P. 161.
[3] "Evolution or Creation?" p. 108.

of Southern Asia or Africa. They must nevertheless be ranked among the catarrhine anthropoid apes."

Haeckel, as we see, supports Darwin in the theory as to man's simian ancestry.

Mitchell,[4] in describing the newly evolved man, says, "This new animal—this early *Homo*—had thick lips, curly hair, and a very black skin. The appearance of such an animal at once excites our interest and leads us to inquire from what preceding form was he descended; what previously existing form was his progenitor.

"The answer is simple. There was but one animal from which he could have descended—that was the great man-like ape, the gorilla, of equatorial Africa. If this is true, and scientists generally admit its truth, what special causes sprang into activity to transmute such an animal as the gorilla—a man-like ape—into what probably was at first an ape-like man?"

It will be noticed that Mitchell claims that scientists generally admit man's descent from the gorilla.

Not all the scientists who have been advocates of the theory of evolution have believed evolution sufficient to account for man's origin. Alfred Russell Wallace did not believe that man—either body or soul—was derived from a lower animal. Mivart did not believe evolution could account for man's soul. Henslow, himself an evolutionist, finds evolution insufficient to account for man. Townsend[5] mentions Romanes, Agassiz, and Dana as believing in the creation of the human soul. Virchow, as quoted by Townsend, says, "There always exists a sharp line of demarcation between man and the ape. We cannot pronounce it a conquest proved by science that man descends from the ape, or from any other animal."

The individuals cited are sufficient to show that some

4 "The Evolution of Life," pp. 418, 419.
5 "Evolution or Creation," p. 256.

of the most eminent scientists have not been carried off their feet by the wave of evolutionary enthusiasm. The evidence for man's evolution from a lower animal is far from conclusive, since it has failed to convince some of the leaders in the physical sciences. The scientists referred to as not accepting man's evolution from a lower animal demanded some evidence other than that of mere analogy or a deductive inference from a generalization which was itself in need of proof. We must remember that Darwin and Haeckel, the two outstanding advocates of man's animal ancestry, were compelled to resort to the thoroughly illogical deductive form of proof.

That man exists is generally recognized as a fact. Even an agnostic of the Spencerian type would probably admit that much. But what is he? We are assured by some evolutionists that man is what he is regardless of his origin. Why should they make such a remark? Because some people believe that the cause determines the effect. As a result they logically affirm that matter can never produce anything but matter—that the effect cannot transcend the cause. Some people want to hold to man's material origin and at the same time believe that he is a spiritual being with almost infinite potentialities. No conclusion could be more absurd.

Man is what he is; but *what* he is must be determined in the light of his origin. If he is an improved monkey, then we may fairly describe him as such, and we have no reason for considering him in any other light. We must logically consider him in the light of his origin. If man is an improved monkey he differs from the monkey, not in kind but in degree. His final destiny must be that of a monkey.

It does not materially alter the case if we assume, with many evolutionists, that man is not a descendent of any

form of monkey—either dead or alive—but of some animal, that left no trace, assumed to be the common ancestor of man and the monkey. This hypothetical ancestor—if discovered—would still be an animal, and we would have no reason for supposing that man and the monkey, its common grandchildren, would be essentially different in their nature. Dadson, in referring to the gibbon, the orang-outang, the chimpanzee and the gorilla, says:[6] "These four apes and man are all distinct species, and have developed along different lines, from common ancestors. They are cousins to one another, all five having descended from some as yet undiscovered progenitors."

Of course, man is more intelligent than the monkeys. But then all monkeys would not be likely to make the same score if given an intelligence test.

If man was once a monkey—or something lower in the scale—the physical scientists have failed to find any means by which he could break away from his animal ancestry. If man is an improved animal, let us recognize the fact and not pretend that he is anything else. What reason can the evolutionist give for asserting that man has transcended the limitations of animal existence? Some evolutionists have accepted the logic of their theory as to man's having the same destiny as an animal.

Dadson,[7] in speaking of man's place in nature, says, "We now know that he is but a part of the great organic whole, and that his origin and his end are similar to those of every other animal. All the force and matter of his composition come from the earth; and we must conclude, at death return to the earth."

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[6] "Evolution and its Bearing on Religions," p. 58.
[7] Op. cit., p. 100.

And Haeckel[8] says: "Our own 'human nature,' which exalted itself into an image of God in its anthropistic illusion, sinks to the level of a placental mammal, which has no more value for the universe at large than the ant, the fly of a summer's day, the microscopic infusorium, or the smallest bacillus. Humanity is but a transitory phase of the evolution of an eternal substance, a particular phenomenal form of matter and energy, the true proportion of which we soon perceive when we set it on the background of infinite space and eternal time."

Haeckel and Dadson represent the position of materialistic monism.

The situation is not improved if one starts from the standpoint of idealistic monism. Evolution of the idealistic sort is no more favorable to man's aspirations toward immortality.

David Friedrich Strauss was a Hegelian in philosophy who at the same time lauded Darwin for his service in disproving the presence of a supernatural agency in the world.

Edwin S. Carr,[9] in discussing Strauss' theology, says: "I will refer to Strauss' Glaubenslehre (1840) only to call attention to his interpretation of Schleiermacher's doctrine of immortality. In the closing pages of the work Strauss suggests the conclusion that immortality can be predicted of the race only; the individual can live after death only in the admiring and grateful memory of posterity."

George Eliot translated Strauss' "Das Leben Jesu" into English. She has fittingly expressed Strauss' view of immortality in those beautiful, but unsatisfying words:

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[8] "The Riddle of the Universe," p. 244.

[9] "The Development of Modern Religious Thought," pp. 238, 239.

"O may I join the choir invisible
Of those immortal dead who live again
In minds made better by their presence; live
In pulses stirred to generosity,
In deeds of daring rectitude, in scorn
For miserable aims that end with self,
In thoughts sublime that pierce the night like stars,
And with their mild persistence urge man's search
To vaster issues.

"So to live is heaven:
To make undying music in the world,
Breathing as beauteous order that controls
With growing sway the growing life of man.

* * * * *

"This is life to come,
Which martyred men have made more glorious
For us who strive to follow. May I reach
That purest heaven, be to other souls
The cup of strength in some great agony,
Enkindle generous ardor, feed pure love,
Beget the smiles that have no cruelty—
Be the sweet presence of a good diffused,
And in diffusion ever more intense.
So shall I join the choir invisible
Whose music is the gladness of the world."

Jacob Gould Schurman[10] thinks that a brute ancestry is no handicap since man has become "not only the paragon of animals, but the one self-conscious denizen of our world, noble in reason, infinite in faculty, in action like an angel, in apprehension like a God. Assume, I say, that Darwin's 'pleasant genealogy for mankind' should pass muster with the herald's college of contemporary biology. What matters it if you have come from brutishness, if you are come to humanity? I ask not what you are derived from, but what you have arrived at? The vital matter is not whether a man started at this point or that, but, in the expressive slang of our day, whether he 'got there.' If you are conscious of the dignity and responsibility of human living, you will survey with indifference speculations concerning the origin of your race, knowing that you are not one whit the better

10 "Agnosticism and Religion," pp. 40-42.

or the worse whether it started with a fallen archangel or an exalted ape . . . . . If any one of us could trace his pedigree through a hundred generations, he would find at the other a end a naked savage but little removed from the brutes. Nay, a short time ago and you yourself were merely a germ which no ordinary power of discrimination could distinguish from an incipient puppy. But these facts are neither degrading nor brutalizing to your humanity. They put on you no obligation to scalp your neighbors, or to grovel on all fours. You are—*not what you have come from but what you have become.*"

Schurman's treatment of the question of man's origin is characteristic of the attitude of many liberal thinkers at the present time. His comments on man's origin—just quoted—are full of assumptions and specious reasoning. He assumes that if man had a brute ancestry of the Darwinian brand that he would be God-like today. There is not the shadow of probability that a brute—*a mere brute*—could attain or has attained the "dignity and responsibility of human living." It cannot be proved that a hundred generations would carry us back to "a naked savage but little removed from the brutes." Outside of evolutionary sociologies no such being has ever been found. Nor is it true that the reader of Schurman's speculations "a short time ago" was *merely a germ";* and the question whether or not that germ could easily be discriminated from that of an "incipient puppy" is beside the mark. All biologists know that germs are essentially as different as the mature forms which develop from them. (What inference would Schurman have us draw from such a similarity?) Such statements as those of Schurman do not meet the issues, but tend to deceive and to give a false impression to the young and unwary who have not learned to think.

Dr. Harry Emerson Fosdick seems to be satisfied to leave the biologists settle the question of man's origin. He is quoted by President C. V. Dunn[11] as follows: "Origins prove nothing in the realm of values. To all folk of spiritual insight man, no matter by what process he at first arrived, is the child of God, made in his image, destined for his character. If one could appeal directly to Mr. Bryan he would wish to say: let the scientists thrash out the problems of man's biological origin, but in the meantime do not teach men that if God did not make us by fiat then we have nothing but a bestial heritage. That is a lie which once believed will have a terrific harvest. It is a regrettable business that a prominent Christian should be teaching that."

Dr. Fosdick, by his own confession, believes that man has been made in the image of God, and he is willing—yes, *more than willing*—to have the biologists tell how he came to such an exalted state. Dr. Fosdick is leaning on a broken reed. The biologists, so long as they remain within their own province, can produce nothing but an animal from an animal germ. Up to date they have not been able to evolve an immortal soul from a brute ancestry. If we accept the biologist's account of man's origin, we should be consistent enough to accept his conclusions as to man's nature. We already know what kind of a man evolution from a brute can produce. We have learned that from Dadson and Haeckel. Death ends all, is their conclusion. Strauss accepted the logic of the evolutionary philosophy. Why not follow Strauss, since W. Robertson Nicoll[12] says of him, "He of all those who measured swords with Christ was the strongest, the ablest, the most candid, the most loyal to the facts as he conceived them"?

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11 "Mr. Bryan and His Critics," Bible Champion, June and July, 1923, p. 322.

12 "The Church's One Foundation," p. 131.

Dr. Fosdick, like other so-called modernists, wishes to furnish the specifications for a man—a man with god-like capacities and destiny—and then leave it to the materialistic biologist to produce him. They have not been able to produce a man of the sort Dr. Fosdick wants, and, judging from past performances, they do not give any promise of being able to do so in the future. Better fall back on Genesis, even though, as Dr. Fosdick affirms, it "reflects the pre-scientific view of the Hebrew people centuries before Christ."

"Origins prove nothing in the realm of values." That proposition would be true if it were changed to read, Origins prove *everything* in the realm of values. As it stands it violates one of the fundamental laws of thought—the law of sufficient reason, "Nothing happens without a reason why it should be so rather than otherwise." We much prefer money minted by the United States Government to that produced by the counterfeiter. Our best guarantee is in the minting. Causes are necessarily bound up with effects, and the effect never transcends the cause. We suspect that Dr. Fosdick's contradictions arise out of trying to work theism and materialistic monism in double-harness. They don't pull well together.

Dr. Fosdick is distressed at the thought that Mr. Bryan should teach that a bestial origin should carry with it a bestial destiny. Possibly Mr. Bryan is not very far wrong. Sir J. W. Dawson,[13] scientist and thinker, more than thirty years ago said, "If man is merely an accidentally improved descendant of apes, his intuitions and decisions as to things unseen must be valueless and unfounded. Hence it is a lamentable fact that the greater part of the men of science who are evolutionists openly

[13] Modern Ideas of Evolution, p. 240.

discard all religious belief, and teach this unbelief to the multitudes who cannot understand the processes by which it is arrived at, but who readily appreciate the immoral results to which it leads in the struggle for existence or the stretching after material advantages."

The theory of evolution produced its logical effect in the life of Darwin. To quote again from Dawson:[14] "This depth of unscientific and unspiritual degeneration, into which the mind may be thrown by the excessive pursuit of evolutionary ideas, is well shown by Darwin himself in a letter written a year before his death. With reference to his doubts as to the existence of God, he asks—'Can one trust to the convictions of a monkey's mind?' But if the idea of God may be a phantom of an ape-like brain, can we trust to reason or conscience in any other matter?"

Darwin's misfortune seems to have been that he was too logical; he accepted the logical implications of his own theory.

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[14] Ibid., pp. 14, 15.

CHAPTER VII

THE MISSING LINK

How about the missing link? What can be found to connect man with the anthropoid apes or an ape-like ancestor? There seems to be only one likely candidate for this honor. It is known as Pithecanthropus Erectus. His name means "erect ape-man." I might say in advance that those who are engaged in popularizing the evolutionary creed quite generally accept Pithecanthropus as the missing link.

I shall, as briefly as possible, examine his credentials to determine whether or not he is able to qualify. It is difficult to reduce to order the multitude of conflicting views on the scientific status of Pithecanthropus. However, I shall quote from a variety of sources to show that his title to such high honors as the ancestor of the human race is open to debate.

Haeckel[1] after referring to the discovery of important fossilized skeletons says: "The most famous and interesting of these discoveries is the fossil ape-man of Java, the much-talked-of pithecanthropus erectus, found by a Dutch military doctor, Eugen Dubois, in 1894. It is in truth the much-sought 'missing link,' supposed to be wanting in the chain of primates, which stretches unbroken from the lowest catarrhinae to the highest developed man . . . . . Thus, by the discovery of this fossil man-monkey of Java the descent of man from the

[1] "Riddle of the Universe," p. 87.

ape has become just as clear and certain from the palaeontological side as it was previously from the evidence of comparative anatomy and ontogeny. We now have all the principal documents which tell the history of our race."

What is this fossil man-monkey to which Haeckel refers? Strange as it may seem, his photograph may be seen in Osborn's "Men of the Old-Stone Age." Science has reached that point where it can restore these ancient worthies and take their pictures. The picture of Pithecanthropus shows us a low-browed, flat-nosed, smooth-shaved individual, with parted lips indicating that he had suffered from adenoids in his youth. The photograph, I believe, is taken from a bust to be found in the Hall of the Age of Man in the American Museum of Natural History in New York City. The Hall of Fame would seem to be a more fitting location for his bust.

Let us see how closely the photograph pictures the "remains." All that was found of the so-called Java skeleton was a tooth about forty-five feet below the surface of the earth, the roof of a skull about three feet from the tooth, a thigh-bone forty-five feet further away, and another tooth. It will be seen that the whole collection amounts to the roof of a skull, two teeth, and a thigh-bone.

Now that we have the bones what can we do with them? Bones are not worth much unless they are classified. What have the scientists to say about them? Professor L. T. Townsend[2] says, "A year or two after these discoveries the world's famous zoologists met at Leyden, and among other things examined were the remains of Pithecanthropus. Ten of those scientists concluded that they were nothing but the bones of an ape; seven held

[2] "Collapse of Evolution," p. 24.

that they were those of a man; seven concluded that they were really the missing link connecting man and the ape. So that of twenty-four of the most eminent scientists of Europe, only seven, not one-third, ascribed any importance whatever to this pithecanthropus erectus.

"But the amusing thing about this celebrated paleontological affair is a recent explanation that accounts for the different opinions of those Leyden experts, though rather hard on the scientists. It is given by Professor D. C. Cunningham of Dublin, one of the highest authorities in Great Britain on questions of comparative anatomy. His conclusion is that those different bones do not belong to the same animal at all, some of them being those of a monkey or baboon, the rest human."

The conclusion reached by the world's famous zoologists in session at Leyden would seem to cast doubt on the faithfulness of the restoration—I almost wrote *creation*—of Pithecanthropus and would hardly support his claim to a place in Dr. Osborn's 'Hall of Fame.'

Professor Haeckel's report on these bones, as quoted by Dadson,[3] is as follows: "The final result of the long discussion at Leyden was that, of twelve experts present, three held that the fossil remains belonged to a low race of men; three declared them to be those of a man-like ape of great size; the rest maintained that they belonged to an intermediate form, which directly connected primitive man with the anthropoid apes. This last view is the right one, and accords with the laws of logical inference. *Pithecanthropus erectus* of Dubois is truly a pliocene remainder of that famous group of highest Catarrhines which were the immediate pithecoid ancestors of man. He is indeed the long-searched-for 'missing link.'"

Dadson goes on to say, "This ape-man was, of course,

[3] "Evolution and its Bearing on Religions," pp. 64, 65.

without speech; and his condition of life probably similar to that of the apes today. It is calculated that he lived aboue 270,000 years ago."

It will be noticed that Haeckel's figures differ somewhat from those of Townsend. However, there is no necessary contradiction. Haeckel seems merely to have eliminated from his calculations the majority of those whose views did not coincide with his own. He omits seven of the ten who said the bones were those of an ape, four of the seven who believed that the bones were those of a man, and only one of the seven who agreed with his view that they were the bones of the missing link. Assuming the truth of both sets of figures, we can see the wisdom of picking your experts.

A thorough discussion of the character of Pithecanthropus would require at least a volume. A few more references to the varying opinions of scientists will seem to show that the claim of this individual to a place in man's family tree is a very precarious one.

T. B. Bishop[4] refers to the view of Virchow, who was for thirty years President of the Berlin Anthropological Society, as follows: "In September, 1895, Virchow presided over the Third International Congress of zoologists in Leyden, when Dubois gave an account of his Java discovery. Wasmann says: 'Virchow uttered a very courteous but crushing criticism upon the speaker's remarks, and showed that it was by no means certain that the remains had all formed part of the same individual, and that it was still less possible to decide whether that individual was a man or an ape.'" (Modern Biology, p. 465).

"The subject was considered at several meetings of the Berlin Anthropological Society, and in December,

[4] "Evolution Criticised," pp. 36, 37.

1895, Dubois was received by the Society, and there was a very full discussion of the paper read by him. Virchow had by that time the opportunity of carefully examining this skull. In his summing up at the close of the debate, he said that he had come to the clear conclusion that the skull had not belonged to a man, but that it showed the greatest similarity to the skull of a Hylobates (Gibbon). According to all the rules of classification, he considered the being an animal, and indeed an ape. He had compared the original drawing made by Dubois, of the correctness of which he had assured himself, with that of a skull of a Hylobates, taken from nature, and there was as great similarity as one could expect between two individuals of the same species. He then went fully into details of the measurements he had taken.

"As to the teeth, they appeared to him much more ape-like than human. Their size and form did not accord with that of a man's wisdom tooth.

"As regards the thigh bone, he said that in spite of its similarity to the *os femoris* of a man, there was so much agreement with that of a gibbon, that he saw no difficulty in its having belonged to a large-sized Hylobates.

"There was some further discussion at the meeting in regard to the injury to the thigh-bone, which had apparently healed, but Professor Virchow said he had seen the same thing in apes of the present day."

Bishop goes on to quote from Professor Branca, Professor of Geology and Palaeontology in the University of Berlin, against the view that the Java bones belonged to the Pliocene age as claimed by Haeckel.

Again, Bishop[5] refers to the view of Kohlbrugge as follows: "He also says: 'The great antiquity ascribed (to Pithecanthropus) appears to be altogether doubtful.'

[5] Op. cit., p. 34.

And again: 'Nothing compels us to conclude that the thigh-bone and the skull belonged to one another.' He says further that, according to Bumüller and Klaatch, the form of the thigh-bone did not justify the title 'Erect' (Pithecanthropus erectus)."

And Bishop goes on to say, "The Rev. E. Wasmann, in his *Modern Biology and the Theory of Evolution* (translated from the German), says: 'It is nothing short of an outrage upon truth to represent scanty remains, the origin of which is so uncertain as that of the Pithecanthropus, as absolute proof of the descent of man from beasts, in order thus to deceive the general public" (P. 465.).

Bishop gives a list of about a dozen prominent scientists who agree with Virchow that Pithecanthropus was merely an ape.

Dr. Dubois' protege would seem to have been sailing under false colors. It would appear more scientific to refer to him as Pithecus, since the evidence goes to show that he was neither *anthropus* nor *erectus*.

I have dealt with the case of Pithecanthropus Erectus at considerable length since these few bones of uncertain antecedents have constituted the only serious claimant to the title of the missing link between the animals and man —or more specifically between the anthropoid apes and man. There is a further reason for examining the scientific claims of these remains to be the missing link in the fact that Pithecanthropus Erectus is commonly and constantly paraded in the class-room and in texts on all sorts of subjects as man's ancestor. When we consider the lack of scientific evidence in favor of such a conclusion, together with its unsettling moral and religious effect on young men and women, the teaching of it as a fact is nothing less than criminal.

We have found the evidence for and against the claims

of the Java bones to constitute the missing link quite conflicting and confusing. When we come to consider the significance of the remains of early man—usually quite fragmentary—we find the scientists as far apart as we have seen them to be in regard to the so-called missing link. The diversity of views expressed by eminent scientists in regard to these fossil bones throws a new light on the meaning of the expression "science teaches" so commonly employed in popular scientific (?) articles in our magazines and newspapers—an expression calculated to produce in the mind of the average reader a conviction of certainty and finality.

What does "science teach" as to these fossil bones? Bettex,[6] speaking of the famous Engis skull, says, "How valueless are the conclusions drawn from certain skulls is shown by what follows. The celebrated skull found at Engis in 1831 was pronounced by Professor Vogt similar to that of an ape; Lyell believed it to be that of a Caucasian; Professor Huxley considers it so beautiful that it might have belonged to a philosopher; the Petersburg anatomist, Theodor Landzert, compares it to the classic skulls of the handsome Greeks! (Ranke, Der Mensch, page 443.)"

Of the Neanderthal skull he says,[7] "Virchow writes of the famous Neander skull, which was supposed to be the type of the antediluvian ape-like man: 'Even if we take it as typical of a race, which I consider inadmissible, we cannot find in it any approach to the skull of an ape.' Dr. Pruner Bey measured its capacity and found it greater than the present average; he considers it that of a Celt of historic times; Professor Davies believes it to be that of an idiot who probably lost his life by falling down the chasm in modern times! Professor Fraas,

[6] "Science and Christianity," p. 32.
[7] Ibid., pp. 32, 33.

himself an authority, is right when he ridicules these results of science, and adds: 'These diverse views of men of science afford the best proof that we know next to nothing about these primitive men.' (Vor der Sintflut, page 478.) Skulls no more bear a date than other bones or stone axes, and in all ages there have been round and long-shaped skulls, clever and stupid heads, and deformities and idiots, too! 'We can positively maintain,' says Dr. Pruner Bey, 'that there is no type of skull which is not to be found in the cave of Solutre.' It is quite impossible to construct theories of racial peculiarities and differences from the shape of skulls."

Just a few more quotations from Bishop[8] concerning the Neanderthal skull: "Rudolph Wagner was of the opinion that it might be that of a modern Dutchman; von Mayer that it might be that of a Cossack buried in 1813 or 1814 . . . . . (La race humaine de Neanderthal, pp. 697, 698).

"Professor W. Branca, in *The Position of Our Knowledge of Fossil Man,* says: 'This diluvial, inferior type of skull has been found today amongst the Australians and Professor H. Klaatsch says that the Australian skull is still lower in type than the Neanderthal skull.

"Branca also says (p. 44) that Virchow, on the occasion of an Anthropological meeting at The Hague, had declared that he had then seen upon the street men with just such skulls as those of the Neanderthal type.

"Dr. Duckworth says that 'corroborative evidence as to the geological or archaeological horizon is lamentably defective.

"He also says that conclusive evidence as to the antiquity of the skull, as distinct from presumption, is unfortunately lacking.

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[8] Ibid., pp. 42, 43.

"Mr. R. R. Marett, in his Anthropology, speaking of Neanderthal man says: 'It is unfortunate that there were no proofs at hand of the age of these relics.'

"Professor Rauff pointed out that no competent judge saw the Neanderthal skeleton in its original position (Wasmann, p. 470)."

Bishop[9] quotes Wasmann as follows: "It has fallen to the lot of this Neanderthal man to be described variously as an idiot, a Mongolian Cossack, an early German, an early Dutchman, an early Frieslander, a connexion of the Australian blacks, a Palaeolithic man, and a still more primitive ape-man. The remains of this skeleton clearly are of a nature to admit of many interpretations, and each student can make of them whatever he wishes" (Modern Biology, p. 468).

In speaking of the Neanderthal man, Bishop[10] says, "No implements were found in the Neanderthal cave, and no bones of extinct animals. It was uncertain whether the bones had been buried, or whether they had been washed into the cave. The workmen were very careless in collecting the bones and secured only the larger ones. Huxley considered that the bones indicated a high antiquity. And yet there were circumstances that might be adduced against it. There was nothing decisive as to the geological epoch."

In spite of the views of European scientists already cited, Theodore Roosevelt,[11] in an article entitled "How Old is Man?" inspired by Osborn's "Men of the Old Stone Age," says, "The next race was that of the Neanderthal men, much more modern and more advanced, but lower than any existing savage, and specifically distinct

[9] Ibid., p. 263.
[10] Ibid. cit., p. 15.
[11] The National Geographic Magazine, February, 1916, pp. 123, 125.

from modern man. This race dwelt in Europe, without other human rivals, for an immense period of time; probably at least fifty thousand years; certainly an age several times as long as the period included in the interval between the earliest polished stone men and ourselves—in other words, several times as long as the age of polished stone, bronze and iron and the total of historic times all put together.

"These Neanderthal men were squat, burly, big-headed, thick-skulled savages, with brows projecting over cavernous eyes, knees permanently bent, and jaws almost chinless. Their brains were of good size, but the portions which represent the higher intellectual attainments were poorly developed.

"The type skull of the race was discovered sixty years ago; but its wide divergence from existing type, combined with its large brain capacity, caused students to doubt its exact place in the human scale. Darwin practically ignored it, though it was exactly the 'missing link' he hoped to find. The perverse ingenuity of the great anatomist Virchow, who with wrong-headed insistence, declared its peculiarities to be pathological, delayed for a generation the full understanding of its importance."

The quotation just given deserves to be classed with the romances concerning primitive man, spun by Van Loon, H. G. Wells and James Harvey Robinson. These historians, not to be outdone by the paleontologists, are giving us the history (?) of prehistoric ages. If one were to drop into the study of one of these writers he could literally see the history of primitive man in the making.

A good example of this type of history is to be found in a recent work of James Harvey Robinson.[12] "Since

[12]"The Mind in the Making," pp. 86, 87.

man is descended from less highly endowed animals, there must have been a time when the man-animal was in a state of animal ignorance. He started with no more than an ape is able to know. He had to learn everything for himself as he had no one to teach him the tricks that apes and children can be taught by sophistocated beings. He was necessarily self-taught, and began, as we have seen, in a state of ignorance beyond anything we can readily conceive. He lived naked and speechless in the woods, or wandered over the plains without artificial shelter or any way of cooking his food. He subsisted on raw fruit, berries, roots, insects, and such animals as he could strike down or pick up dead. His mind must have corresponded with his bruitish state. He must at the first have learned just as his animal relations learn—by fumbling and by forming accidental associations. He had impulses and such sagacity as he individually derived from experience but no heritage of knowledge accumulated by the group and transmitted by education. This heritage had to be constructed on man's potentialities.

"Of mankind in this extremely primitive condition we have no traces. There could indeed be no traces. All savages of the present day or of whom we have any record represent a relatively highly developed traditional culture, with elaborate language, myths, and well-established artificial customs, which it probably took hundreds of thousands of years to accumulate. Man in 'a state of nature' is only a presupposition, but a presupposition that is forced upon us by compelling evidence, conjectural and inferential though it is."

Such is history! The necessity implied in "must" and "necessarily" is merely an inference from the evolutionary creed. The author sketches *history* of which "we have no traces." I am at a loss to understand how a presupposition can be "forced upon us" by *conjectural*

evidence. My dictionary defines "conjectural" as "of the nature of or dependent on conjecture; not determined; uncertain; doubtful." "Conjecture" itself is defined as "an indecisive opinion; a guess; a surmise."

The market is glutted nowadays with history constructed on the evolutionary pattern. Facts are not necessary. Assuming the evolutionary theory true, the historian does not need to search for facts, he becomes a creator of facts.

But why all this ado about Pithecanthropus and the Neanderthal man, since they are not to be included among our ancestors? In this article by Theodore Roosevelt[13] already quoted from, he says, "He (Mr. Osborn) discusses the famous ape-man of Java, the Pithecanthropus, the pre-human creature—probably, however, only collaterally in our line of ancestry—who appeared at the dawn of the Pleistocene." And a little farther along—speaking of the so-called Neanderthal race—he says,[14] "At last the life term of these primitive hunter folk drew to a close. They were not our ancestors."

We are told that the Neanderthals were exterminated by the Cro-Magnon race, a tall, intelligent race of hunters.

To further discredit the claim of the Neanderthal who terminated in a dead limb of our family tree, McCann[15] says, "In the meantime, Professor Arthur Keith, Royal College of Surgeons, who, as one of Europe's most distinguished authorities, is recognized by Osborn, takes all the facts in the case, and in a single statement smashes the missing link significance of the Neanderthals: *'We are compelled to admit that men of modern type had been in existence long before the Neanderthal type.'* "

It is clear, then, that those who fondly cling to the idea

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[13] Op. cit., p. 120.
[14] Ibid., p. 125.
[15] "God—or Gorilla," p. 70.

that the Neanderthal man antedates modern man and that he furnishes a link between the apes and men of today do so because they *wish* to and not on the basis of conclusive evidence.

Graebner[16] says, "Every new find, upon investigation, proves the truth of Virchow's words: 'We must really acknowledge that there is a complete absence of any fossil type of a lower stage in the development of man. Nay, if we gather all the fossil men hitherto found and put them parallel with those of the present time, we can decidedly pronounce that there are among living men a much greater proportion of individuals which show a relatively inferior type than there are among the fossils known up to this time . . . . . Every positive progress which we have made in the region of prehistoric anthropology has removed us farther from the demonstration of this theory.' "

In the light of Graebner's quotation one can readily understand why evolutionists should consider Virchow *perverse*. He was more interested in a fair presentation of the facts than in proving evolution true.

If odd-shaped skulls today are not to be considered as missing links why should those of past centuries be considered so since, as Virchow affirms, the proportion of inferior skulls is greater today than among the fossil skulls of ages past. The whole argument for man's descent from an ape or its eqiuvalent looks very much like picking one's witnesses and excluding all testimony unfavorable to one's case. Such practices may bring success to a lawyer, but they are not the marks of a true scientist. It looks like another case of stringing beads. One suspects—to use a slang expression—it is the followers of the evolutionary faith that are being *strung* by their leaders.

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[16] "Evolution, An Investigation and a Criticism," pp. 97, 98.

If any evidence were needed to substantiate Virchow in arguing against an improvement in the general run of skulls in modern times, it could be found in certain figures by Dr. Friedrich Pfaff, quoted by Townsend,[17] showing the measurements of groups of skulls belonging to different countries and ages. These figures giving the size of skulls show that three out of four groups of skulls, supposed to date back to 'the stone age,' have a larger capacity in cubic inches than the average European skull of today.

A very ingenious theory as to man's relation to the apes is that advanced by Professor Wood Jones of London who suggests that man is not descended from an ape, but that the ape has descended from a human ancestry. If true, this would be a real *descent*—much more so than that of man from the ape. The ape, then, would be a degenerate cousin of modern man, a degenerate descendant of primitive man. The Talgai skull, found in Australia, he considers to antedate the appearance of the apes. Geological evidence seems to favor this theory. Townsend says,[18] "And in passing we may remark that geology has not yet discovered the remains of any race of any monkeys or apes that appeared on earth prior to the coming of man. Of the two, man, not the monkey, was first."

While a variety of reasons might be given for not accepting the theory of the ape's descent from man, it does explain the lower in terms of the higher, which is more in accordance with the principle of sufficient reason than to attempt to explain the higher in terms of the lower.

Just a word as to the reconstruction or restoration of human skulls. Professor Keith[19] says: "As a rule little

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[17] "Evolution or Creation," pp. 96, 97.
[18] Op. cit., p. 187.
[19] Quoted by Bishop, "Evolution Criticised," p. 27.

more than the vault of fossil skulls is found." This fact allows the scientific artist, who is doing the reconstructing, considerable latitude in his creative work. The scientist sometimes pieces out the skeleton with the fossil bones of other individuals, in some cases with the bones of an anthropoid ape.

The uninitiated may wonder how the Java bones, few as they are and classed by some scientists as those of an ape, can be photographed and look so natural as does the ape man of Java, pictured in Osborn's "Men of the Old Stone Age." That is one of the notable achievements of modern science. Given the roof of a skull, two teeth and a thigh-bone, either ape or human or some of both—depending on the scientist consulted—a skillful artist can construct a bust just as brute-like as his theory—or that of his superior—may dictate. From these few bones of doubtful character the artist has *created* the Pithecanthropus previously described. Of course, an artist working in the employ of Virchow would have "constructed" or "restored" an ape. Another artist under the direction of a different scientist would have constructed a man. And still another would, from the same fragments, have constructed both an ape and a man.

And yet we are told that Cuvier—if given one bone—could reconstruct the entire skeleton of an extinct animal. Some of our modern scientists can do as much; but we have reason for doubting whether the reconstructed animal is an exact duplicate of the original one. Of this much we are certain, it would not require a zoologist to see the difference between Osborn's ape-man and Virchow's anthropoid ape, and yet they are both derived from the same handful of bones. Do these restorations or reconstructions illustrate science as an *exact knowledge of facts?*

The transformation that these bones have undergone

since they were found by Dubois might well be called an *evolution.*

In regard to the reconstruction of the Eoanthropus or Piltdown skull, Graebner[20] says, "Dr. Smith Woodward and Dr. Charles Dawson, in reconstructing a man from the *Piltdown skull,* discovered in 1912 at Piltdown Common, near Ucksfield, Sussex, England, built up something essentially monkey-like, with receding forehead, projecting brows, and a gorilla-like lower jaw. Professor Keith, a renowned specialist, checking up on this reconstruction, comes to an entirely different conclusion. He finds that the work of Drs. Dawson and Woodward was done in open defiance of all that scientists know about skulls, whether ancient or modern. His words are, 'I soon saw that the parts of the reconstructed Piltdown had been apposed in a manner which was in open defiance of all that was known of skulls, ancient and modern, human and anthropoid. Articulating the bones in a manner which has been accepted by all anatomists in all times I found that the brain-chamber, instead of measuring 1070 cubic cm., as in Dr. Smith Woodward's reconstruction, measured 1500 cubic cm.,—a large brain chamber for even modern man."

But the scientists were not done with Eoanthropus. A later estimate gave the Piltdown man 1300 cubic centimeters of brain chamber.

The skull of this individual amounted to three pieces of skull—a small piece of parietal bone, a large piece from the frontal region, a small piece of occipital bone—a piece of jaw bone, a canine tooth, two molars and two nasal bones.

The canine was first put on the right side of the lower jaw. Other scientists moved this to the left side of the upper jaw. But the worst is yet to come. McCann[21]

[20] Op. cit., pp. 95, 96.
[21] Op. cit., p. 8.

quotes Professor Ales Hrdlicka as follows: "The most important development in the study of the Piltdown remains is the recent well documented objection by Professor Herritt S. Miller of the United States National Museum to the classing together of the lower jaw and the canine with the cranium. According to Miller, who had ample anthropoid as well as human material for comparison, *the jaw and tooth belong to a fossil chimpanzee.*"

And McCann goes on to say, "No wonder the great German anatomist, G. Schwalbe, so frequently quoted by Professor Osborn, had to abandon the 'missing link' opinion so picturesquely and noisily voiced as a scientific fact when he declared that 'the proper restoration of the Piltdown fragments would make them belong not to any preceding stage of man, but to a well developed, good-sized Homo Sapiens, the true man of today.' Why are such facts as these withheld from the young student and from his teacher if truth is really an objective?"

McCann cites other eminent authorities who claim that the jaw bone is that of a chimpanzee and does not belong to the skull. Some of these expressed such an opinion shortly after the discovery of the bones.

In spite of these opposing views—the views of some of the most eminent living scientists—the Piltdown "restoration" still serves as a missing link.

The "restoration" of Pithecanthropus and Eoanthropus renders us justly suspicious of the reconstruction of missing links. One thing is certain, they can make no valid claims to being scientific in character. However, they do serve to deceive those who do not know the antecedents of these busts and that they do not represent a consensus of the best scientific opinion. They do serve to gain converts to the cause of evolution. Are we to infer that the end justifies the means? That would not be inconsistent with evolutionary ethics.

CHAPTER VIII

HOW OLD IS MAN?

Varying answers have been given to this question. It is merely a part of a larger question as to the age of the earth and the various geological strata.

How old is the earth? Its age has been variously estimated. McCann says,[1] "Calculations based on the cooling process of the earth give it an age of 30,000,000 years. Calculations based on the theory of radio-activity give it an age of less than 6,000,000 years." Fitch[2] tells us that the earth is more than 240,000,000 years old.

Do such estimates deserve the name of 'science'? There is a great deal of difference betwen 6,000,000 and 240,000,000. If that is the nearest that scientists can come to reaching an agreement, it is evident that the time is not ripe for estimates.

The time allotted to man's existence on the earth is just as uncertain relatively—if we are to depend on the scientists—as is the age of the earth.

How old is man?

Townsend[3] gives the following estimates: "Mr Thomas Sterry Hunt, late President of the British Anthropological Society, announced the extraordinary opinion that man has been on this earth nine millions years. M. Lalande declared (1867) that 'man is eternal.' Dr. A. R. Wallace is of the opinion that five hundred thou-

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[1] Op. cit., p. 290.
[2] "Universal Evolution," p. 32.
[3] Op. cit., p. 189.

sand years are sufficient for human history." Dawson says there is no geological reason for believing that man has existed over seven thousand years.

How are we to account for such varying estimates? The reason for such a divergence in opinions is to be found in a number of considerations.

The first of these that I shall mention is to be found in one's geological theory. According to the uniformitarian theory in geology all changes in the earth's history have come about slowly and steadily, the forces and activities of the past were uniform with those in operation today. The opposed, or catastrophic theory, holds that the physical condition of the earth's surface was brought about by sudden and violent changes. More time is necessary to account for the geological changes in the earth's crust if one accepts the uniformitarian theory. The uniformitarian demands a great length of time to account for the geological history of the earth.

Accidental circumstances have also led to error. Human remains in "dug graves" have been mistaken for those in natural deposits.

The theory as to the rate at which sediment has been deposited has also misled some of those who have tried to determine the age of human remains. An illustration of such an error is given by Townsend.[4] "Mud deposits," he says, "constitute another very unsatisfactory source of evidence for those who are attempting to carry the antiquity of man back to distant ages. It was only a few years since that, with great confidence, an opinion was announced by several geologists, including so eminent an authority as Professor Lyell, that human remains found in the mud deposits of the Mississippi beyond question carried the origin of the human race back more

[4] Op. cit., pp. 202, 203.

than fifty thousand years. One piece of evidence, unearthed while digging for the gas-works in New Orleans, was considered very conclusive. It was the skeleton of a Red Indian, discovered at considerable depth below the surface. Dr. Bennet Dowler made careful estimates and reached the conclusion that the skeleton was fifty-seven thousand years old, and according to the uniformitarian theory the conclusion was correct.

"A little later, a piece of wood showing the workmanship of a high order of tools also was found at Port Jackson deeper down than Dr. Dowler's Red Indian. That venerable piece of wood more than fifty-seven thousand years old (?) was placed before the New Orleans Academy of Science; it was carefully examined and pronounced to be no ancient relic at all, but the gunwale of a Kentucky flatboat. That discovery of course settled the age of the Red Indian."

Peat-bogs, too, have been found to furnish a very uncertain basis for calculating the age of human remains.

"A few years since," we are told by Townsend,[5] "human remains found in the peat-bogs of Scotland and Ireland, in the judgment of several scientific men, carried the antiquity of those who had peopled Great Britain back many thousand years beyond historic times. But, on further investigation, there were discovered at the same level and in the same deposits axes and knives of Roman manufacture and coins bearing the stamp of Roman emperors as late as 237 A. D."

Reference to "men of the old stone age" gives an impression of great antiquity—but without good reason. Dawson[6] tells us that "In Europe we find reason to believe that the Ligurians of Northwestern Italy were flint-folk of very rude type until they were conquered by the

[5] Op. cit., p. 208.
[6] "The Origin of the World," p. 282.

Gauls about 400 B. C. Though the Gauls, Britons and Germans of the age of Julius Caesar had iron weapons, yet it is evident that the metal was very scarce, and that bronze was more common; and in confirmation of this it is found that in the trenches before Alize, the Alesia of Caesar, where the final struggle of the Roman general with Vercingetorix took place, weapons of stone, bronze, and iron were intermixed. All over the more Northern parts of Europe there is the best reason to believe that the use of stone and bronze continued to a much later period, and locally until long after the Christian era."

Stone implements and weapons are just about as dependable as a means of determining chronology as we have found Mississippi mud and Irish and Scotch peat-bogs to be. Iron[7] was in use among the Chaldeans and among the Egyptians long before the Exodus. Stone implements have been in use up to within the last half century and are probably doing service today in some parts of the world.

The use of stone implements does not prove a people more ancient than one using bronze or iron. We learn from Schliemann's excavations on the site of ancient Troy, that Homer's Troy with its implements and weapons of copper, bronze and stone, its gold jewelry, gold and silver vessels, was followed on the same site, by a civilization of a much lower order characterized by rude stone implements and rude pottery. This people was succeeded by another barbarous people who used coarse pottery, implements and weapons of copper or bronze, stone knives and saws. Here we have a succession of ages, but not those suggested by the evolutionary theory.

The theory that man in his development passed through a series of stages of great length in which he used successively rough stone, smooth stone, bronze, and iron

[7] Ibid., p. 281.

tools and weapons is a very ingenious theory, but without substantial historical or geological proof. It is merely a deduction from the general theory of evolution. It is quite plausible—as a theory—but fails to accord with the facts as known. It is another example of stringing beads.

Cave dwellers—or troglodytes—are commonly exploited as being very ancient. Dwelling in a cave would furnish stronger proof for man's antiquity were it not for the fact that in various parts of the world men still dwell in caves.

The uncertainty involved in determining cosmic chronology is well expressed by Tefft:[8] "Let any man try the experiment of cooling a red-hot cannon-ball. Or let him stir into a glass jar of water all that the water will dissolve of soft clay or mud, till it becomes a roily mass of slop, and then sit down, and take the difference in the rapidity of the act of settling, between the first and the last minute of the hour he gives it. It will throw down more sediment during the first sixty seconds than for the four minutes afterwards; and, when it comes to the last of the hour, five full minutes will deposit less than the amount falling the first half second. This whole presumption of fixing the earth's chronology, indeed, is nothing but presumption. There certainly is very little science in it. At best, it is only inference; and inference, as we have seen, is far from being knowledge. This geological chronometer, therefore, whose fanciful achievements have so scared the world, is no better than the most rickety old timepiece that ever stood behind the door in a farmer's kitchen, where the children were somtimes hanging on the weights; and at other times holding them up, so as to leave no pressure on the working machinery but the cords."

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[8] "Evolution and Christianity," p. 189.

CHAPTER IX

GEOLOGY AS A PROOF OF EVOLUTION

It is very evident that if the theory of evolution is to be proved it must be largely accomplished through the appeal to geological evidence. Geology probably furnishes the strongest argument for evolution, since it makes an appeal to facts that have appeared in succession. The question as to the actual order of succession of organic forms in the history of the earth still remains to be determined. It will be evident before we are through with our discussion, that the time order of animal forms is a difficult problem to solve. In fact, much that is commonly supposed to be scientifically proved is merely an inference from the general theory of evolution. The time order, or succession in itself, offers a very serious problem for the geologist or palaeontologist.

It is well to notice that even if the succession of forms could be determined—which it has not—the question as to the existence of a genetic relationship is still to be proved. Succession does not prove genetic relationship. To maintain that it does is to be guilty of a fallacy called in logic *post hoc ergo propter hoc,* which means, "After this therefore on account of this." It is a confusing of succession with causation. It is a fallacy that underlies much of the argument for evolution based on geology.

Professor H. B. Scott,[1] in his discussion of "Evidence from Palaeontology," says, "Palaeontology is the science which deals with the fossils of animals and plants en-

[1] "The Theory of Evolution," p. 83.

tombed in the rocks of the earth's crust. This science has certain preeminent advantages for the investigation of evolutionary problems, because it has to do with the recognizable remains of the actual organisms which formerly inhabited the surface of the earth and which are themselves the links in the chain of development. (Note begging the question in the last clause, "*Which are themselves the links in the chain of development.*") If there be any truth in the theory of evolution, palaeontology ought to be one of the strongest supports and offer some of the most convincing testimony in its favor, and, on the other hand, if it be false, the fossils should be able to expose its fallacies in an overwhelming manner.

"Here, again, it is necessary to utter a warning not to expect too much, for this method of inquiry suffers from certain very serious difficulties and disadvantages."

If a single example of a genuine evolution in historic times could be proved, the appeal to geology would be entirely unnecessary. One instance proved beyond all reasonable doubt would prove the principle at issue and would, at least, furnish a strong probability that all organic forms have become what they are by a process of evolution from simpler forms. In such a case, the fragmentary and inconclusive evidence of geology would be supplemented by an actual example. Till such an example has been found, the geological record must be taken as it is.

That the geological record fails to furnish a closely related series of fossils, such as one would expect to find if the evolutionary theory were true, is frankly admitted by Darwin. He says,[2] "Why then is not every geological formation and every stratum full of intermediate links? Geology assuredly does not reveal any such fine-

[2] "The Origin of Species," vol. II, pp. 29, 30.

ly-graduated organic chain; and this, perhaps, is the most obvious and serious objection which can be urged against the theory. The explanation lies, as I believe, in the extreme imperfection of the geological record."

Here we have an admission as to "the extreme imperfection of the geological record." Nature seems to have been very careless in keeping her records. This carelessness has meant serious embarrassment to the evolutionist.

Professor LeConte[3] finds the same difficulty that confronted Darwin. He says, "As in the case of *contiguous* geographical forms, the change is apparently by *substitution* of one species for another, and not by *transmutation* of one species into another. So also in *successive* geological forms the change seems rather by substitution than by transmutation. In both cases species seem to come in suddenly, with all their specific characters perfect, remain substantially unchanged as long as they last, and then die out and are replaced by others. Certainly this looks much like immutability of specific forms, and supernaturalism of specific origin."

LeConte does not find "the extremely fragmentary character of the geological record" an entirely satisfactory excuse for not finding a more closely related series of forms. He says,[4] "This is undoubtedly in most cases a true and sufficient answer, yet we think the fragmentariness of the geological record has been overstated. While it is true that there are many and wide gaps in the record; while it is true, also, that even where the record is continuous many forms may not have been preserved, yet there are some cases, especially in the Tertiary freshwater deposits, where the record is not only continuous

[3] "Evolution and Its Relation to Religious Thought," pp. 251, 252.

[4] Ibid., pp. 252, 253.

for hundreds of feet in thickness, but the abundance of life was very great, and the conditions necessary for preservation exceptionally good. In such cases the number of fossil remains found on each horizon seems to be as great as in existing faunas over equal space. The record in these cases seems to be continuous and without break, and crowded with fossil forms; and yet, although the species change greatly, and perhaps many times, in passing from the lowest to the highest strata, we do not usually, it must be acknowledged, find the gradual transitions we would naturally expect, if the change were effected by gradual transformations. The incompleteness of the record, therefore, although a true and important cause, is not the whole cause."

The quotation from LeConte shows that where the record is continuous for hundreds of feet, where forms are plentiful and all conditions are favorable to their preservation, even here where there can be no suggestion of an imperfect and fragmentary record, the evidence for transmutation by gradual changes is lacking. Why, then, argue that the absence of connecting forms is due to an imperfect record, when they are confessedly lacking where there is a continuous record? It may be that the demand is unreasonable. Why blame the record till we have reason for believing it at fault?

Why does the evolutionist think the geological record so fragmentary? Because it has not preserved the forms which he thinks *must have existed.* We have no evidence that the missing forms ever existed outside the imagination of the evolutionist. This is one place where theory and facts do not seem to coincide. Possibly the evolutionist is at fault rather than nature. Why not construct a theory in keeping with the facts?

LeConte's[5] own explanation of the scarcity of transition forms is "that *the steps of evolution are not always uniform.*"

"Nearly all evolutionists have assumed and even insisted on uniformity, as the opposite of catastrophism and of supernaturalism, and therefore as essential to the idea of evolution. They say that the constancy of the action of the forces of change necessitates the uniformity of the rate of change. But, in fact, this is not always, not even usually, true. Causes or forces are constant, but phenomena everywhere and in every department of Nature are paroxysmal."

It is seen, then, that LeConte avoids the difficulty involved in the lack of transition forms by propounding this theory of paroxysmal evolution. The fact that Le Conte, a geologist, found the imperfections of the geological record so serious that he was driven to formulate a theory of evolution by paroxysms would seem to indicate that geology does not very strongly support the theory of evolution.

The fragmentary character of the geological record is a tender spot with the evolutionists. Some very ingenious attempts have been made to show that it is really not a very serious matter, in fact that it is practically inevitable that nothing short of a miracle could have made it otherwise.

One writer,[6] after admitting the fragmentary character of the geological evidence for the theory of evolution, suggests different reasons why there should be numerous links missing. He believes that the objection to evolution based on the absence of connecting forms can be met by pointing out the necessarily fragmentary character of the record.

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[5] Ibid., pp. 257, 258.

[6] Mateer, "Evolution vs. Special Creation," pp. 7, 8.

Granting that some forms may have been lost by the action of heat, pressure, erosion, etc., that does not constitute a scientific proof that the series ever was as complete as would be necessary to substantiate the theory of evolution.

The writer seems to have only one of the two possible alternatives in mind. The lack of needed links may be due to the loss of connecting forms that once existed or to the absence of connecting forms that never existed. In view of LeConte's admission, already noted, that even where the record is continuous for hundreds of feet in thickness, with an abundance of life and conditions exceptionally favorable, that there was a lack of transition forms one would expect to find, it would seem that the fragmentary character of the record is not a sufficient explanation of the lack of connecting forms. A fragmentary record might well account for the loss of connecting forms—supposing that they at one time existed —but it cannot be urged as *proof* that such connecting forms ever existed.

Another example of bizarre logic follows:

In answer to the claim that "it is necessary that scientists should be able to produce the complete evidences of the development of at least one species from a preceding form before the theory may be said to be established," the same writer[7] says, "This argument is not without force, but it is readily and fully offset by the counter argument that, if such a continuous process of special creation has been the fact, it is equally incumbent upon the advocates of such a theory to show forth a case of special creation."

Before considering the logical value of the argument advanced, it is worth noticing that we have here a virtual

[7] Ibid., pp. 7, 8.

admission that the evolutionists cannot "produce the complete evidence of the development of at least one species from a preceding form," since the writer while admitting the force of the demand does not offer to furnish an example but relies on logic to refute those who make such a demand.

The writer's demand that the advocates of special creation "show forth a case of special creation" seems a little bit unreasonable, since those who believe in special creation—so far as I know—believe that the creation of man was the culmination of creation. In such a case it is difficult to understand how such special creation must —as the writer suggests—"almost necessarily fall under man's observation."

Alexander Patterson[8] quotes from a number of noted scientists in proof of the futility of appealing to geology in support of evolution. He quotes Sir Roderick Murchison as follows: "I know as much of nature in her geologic ages as any living man, and I fearlessly say that our geologic record does not afford one syllable of evidence in support of Darwin's theory." The testimony of Joachim Barrande, the great Swiss geologist, is, "One cannot conceive why in all rocks whatever and in all countries upon the two continents, all relics of the intervening types should have vanquished . . . . . The discordances are so numerous and pronounced, that the composition of the real fauna seems to have been calculated by design for contradicting everything which the theories (of evolution) teach us respecting the first appearance and primitive evolution of the forms of life upon the earth." (Quoted by Wincehell in "Doctrine of Evolution," p. 142.)

He also quotes Professor Conn as saying, "In all the

[8] "The Other Side of Evolution," pp. 38-40.

earliest records geology discloses, we find not a few generalized types but well differentiated forms, nearly all the sub-kingdoms as they now exist, five-sixths of our orders, nearly an equal proportion of sub-orders, a great many families and some of our present species. All this is a surprise and unexplained problem."

And Professor Adam Sedgwick says, "At succeeding epochs, new tribes of beings were called into existence, not merely as the progeny of those that had appeared befor them, but as new and living proofs of creative interference."

The testimony of scientists shows that, from the evidence given by geology, it is impossible to trace the evolution of the simpler forms of animal life by gradual transitions up to the more complex ones. The evolutionist who is compelled to admit the inconclusiveness of the geological argument for evolution usually appeals to one of the other stock arguments used in support of the theory. This, on careful examination, is found to be no more convincing.

The lack of connecting forms is not the only difficulty in the way of proving evolution from the geological record. The animal forms found as fossils in what are supposed to be the oldest rocks show a pronounced unwillingness to evolve into higher forms.

In discussing the bearing of palaeontology on the subject of evolution, Fairhurst[9] says, "In the present chapter I shall attempt to show that the great progress in structure which evolution assumes to have taken place in deriving man from primordial protoplasm is not consistent with the total lack of progress in many of the forms in the animal kingdom.

"The great instability of organic forms implied by the

[9] "Organic Evolution Considered," pp. 104, 105.

evolution of man is, I think, entirely inconsistent with the known stability or comparative stabiilty of a large part of the animal kingdom."

He quotes J. W. Dawson (Story of the Earth and Man," p. 357) as follows: "Pictet catalogues ninety-eight species of mammals which inhabited Europe in the Post-glacial period. Of these,fifty-seven still exist unchanged, and the remainder have disappeared. Not one of them can be shown to have been modified into a new form, though some of them have been obliged, by change of temperature and other conditions, to remove into distant and now widely separated regions. Further, it would seem that all the existing European mammals extend back into geological times at least as far as man, so that since the Post-glacial period no new species have been introduced in any way."

Fairhurst[10] quotes Darwin ("Origin of Species, p. 313) on the stability of animal forms as follows: "The problem whether organization on the whole has advanced is in many ways excessively intricate. The geological record, at all times imperfect, does not extend far enough back, as I believe, to show with unmistakable clearness that within the known history of the world organization has largely advanced."

Fairhurst very reasonably asks, "If he cannot, from the known geological record, which probably extends over 50,000,000 years, assert that 'organization has largely advanced,' what infinite time beyond the primordial period would be necessary in order to make a large advance?"

As an example of persistence without change of form, Fairhurst[11] mentions the Trilobites which, according to Dana's reckoning of geological time, lived 36,000,000 years. Of these he says, "From their great persistence

[10] Op. cit., p. 106.
[11] Ibid., p. 107.

in time it would seem that they had a remarkably good opportunity to make wonderful progress in structure. During that time there were thousands of species, yet they made no progress. We do not know that in all those millions of years a single higher form was evolved from any one of the great multitude of species of Trilobites. As Darwin says of a goose, so I say of the Trilobite, it 'had a singularly inflexible organization.'

"The remarkable thing about this, however, is that previous to the primordial, while it was becoming a Trilobite, it must have had a singularly flexible organization, otherwise it could not have obtained its complex structure; but when it reached the Primordial it became very conservative.

"It is strange beyond belief that an animal which was making such wonderful strides on the road of evolution, outstripping every competitior except the Orthoceras, should suddenly lose all power to progress in structure and still live on with little change through most of geological time."

Huxley, in an anniversary address to the Geological Society in 1870, as quoted by Fairhurst[12] says: "In answer to the question, 'What then does an impartial survey of the positively ascertained truths of paleontology testify in relation to the common doctrines of progressive modification, which suppose that modification to have taken place by necessary progress from more to less embryonic forms, from more to less generalized types, within the limits of the period represented by the fossiliferous rocks?' I reply, 'It negatives these doctrines; for it either shows us no evidence of such modifications, or demonstrates such a modification as has occurred to have been very slight; and as to the nature of that modifica-

[12] Op. cit., pp. 111, 112.

tion, it yields no evidence whatsoever that the earlier members of any long-continued group were more generalized in structure than the later ones.

"The significance of persistent types and of small amount of change which has taken place even in those forms which can be shown to have been modified, becomes greater in my eyes, the longer I occupy myself with the biology of the past."

In summing up his discussion of Palaeontology, Fairhurst[13] says, "Looking at the known geological facts, there exist through all geological time wide gulfs between groups of organic beings which are not bridged by intermediate forms. And very remarkable it is that the gulfs between the great groups of animals are, in most cases, quite as wide in the beginning as they are at the end. It is a quite universal rule that species, orders, and classes appear suddenly, as if by substitution, and not by evolution."

The effort to prove the theory of evolution by an appeal to geology meets with other difficulties in addition to those already pointed out.

Now it must be admitted that the palaeontologist is able to make a very plausible case for evolution if he is permitted to pick his forms at random among all the forms known to science. But the different beads on a string, however nicely graduated, are not genetically related. A genetic series of forms—or a relation by descent—carries with it a definite succession in time. An antecedent form in a genetic series must be antecedent in time. That which is first in the genetic series must be first in time; that which is second in the genetic series must be second in time; and so on down through the entire series.

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[13] Ibid., pp. 139, 140.

In order to prove that a selected series of forms that simulate a genetic series is *possibly* a genetic series, it is necessary for the palaeontologist to prove that the forms have occurred in the order in which he has placed them. I said "possibly" because mere sequence does not prove a genetic relation. If he is to prove the geological succession of the forms which he has theoretically assumed to be genetically related, he must know the chronological order of the different fossiliferous rocks.

Is the paleongologist able to prove a correspondence between his assumed genetic series and an actual corresponding geological series?

Can the chronological order of the various strata of the earth be determined?

Price[14] tells us that a German scientist named Werner observed the order of the granites, limestones, sandstones, etc., in his native country and drew the conclusion that what was true there would be found to hold all over the world. This is the so-called "onion-coat" theory.

Did this settle the question as to the succession of life forms on the earth? Far from it. It was found that the rocks in other parts of the world did not conform to Werner's theory. This made it necessary for the scientists to find some other method of determining the relative age of the rocks. Finding it impossible to determine the succession of life forms from the rocks, they changed front and instead of using the rocks as a basis for determining the sequence of fossils they used the fossils to determine the sequence of the rocks.

This much is logically certain: If it is necessary to appeal to the fossils to determine the sequence of the rocks, then the rocks cannot be used as a means of determining the sequence of the fossils.

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[11] "Q. E. D." pp. 101-110.

In fact the geological situation proved so confusing that Professor Huxley, as quoted by Price, says, "In the present condition of our knowledge and of *our methods,* one verdict,—'not proven and not provable' must be recorded against all grand hypotheses of the palaeontologist respecting the general succession of life on the globe."

The difficulty in determining the order of succession and relative ages of the different geological strata is evident from certain facts set forth by Price. Of these I mention only a few.

The geological strata do not always conform to the theoretical order as laid down by the geologists. The "younger" beds or strata are found resting on the "oldest" with every appearance of being there naturally.

The same kind of stratum is found to be repeated in alternation with others of different ages.

In some parts of the world over hundreds and even thousands of miles the "older" rocks are found *on top of the "younger" ones.*

The failure of the rocks to conform to geological theories would seem to indicate a fault somewhere—either in nature or in the theories.

We have found in our consideration of Pithecanthropus and Eoanthropus that their assignment by certain evolutionists to a remote antiquity was due to the reconstruction of these from a few fragments, along ape-like lines, and not to any conclusive evidence of a geological nature. In some instances where a great antiquity has been assigned to certain human remains, it has been possible to correct the error of the scientists by an appeal to dated coins and fragments of modern flat-boats.

We have noticed an absence of connecting forms in the geological records to constitute a continuous series that might be construed as a genetic series.

We have also found fossils of new and highly developed forms of animal life appearing in the geological record with no similar forms to serve as their possible ancestors.

In addition to these difficulties we have found geological chronology a very uncertain affair.

The evidence presented would seem to prove that while the crust of the earth is a store-house for fossils, it constitutes a very uncertain means of determining their age or succession.

CHAPTER X

EMBRYOLOGY AS A PROOF OF EVOLUTION

The evolutionists base a number of their arguments on embryology. The first of these is the argument based on the sameness in the egg-cells of the various animals and man.

"It is claimed," says Fairhurst,[1] "that the egg-cells, or germ-yolks, of all eggs are alike in structure. The germ-yolk is that part of the egg that develops into the animal. Its usual size is from 1-100 to 2-100 of an inch in diameter. The greater part of the egg, in many cases, is food for the growing embryo.

"Inside of a few weeks, or at the most, of a few months, beginning with vertebrate eggs that are said to be essentially alike in structure, we see developed Fish, Amphibian, Reptile, Bird and Mammal.

"If all eggs are essentially alike in structure, how can one become a fish and another a dog? No egg makes a mistake and develops into an animal of another class. It is evident that while all eggs, from that of the sponge to that of man, may seem to be alike in structure, they are really as far apart in their essential nature as are the fully developed sponge and the full-grown man. The essential factor of possibility in the life of any organism is bound up in the egg."

The fact that a biologist does not at the initial stage detect differences in egg-cells 1-100 to 2-100 of an inch in diameter—differences that soon manifest themselves—

[1] "Organic Evolution Considered," p. 146.

is not proof that no differences exist, but is a proof that the biologist is limited in his knowledge. The child's inability to distinguish the difference between water and oil does not necessarily prove that they are the same. The evolutionary biologist capitalizes his ignorance and attempts to use it as a proof of evolution. It is logically a strange situation when a reputed scientist tries to prove his theory not by what he knows, but by what he does not know.

The second of the arguments for evolution from embryology is expressed in the theory of recapitulation.

According to this theory ontogenesis is a repetition, or recapitulation, of phylogenesis.

"*Ontogenesis,*" as defined by Dawson,[2] "is the embryonic development of the individual animal, and is of course a short process, depending on the production of a germ by a parent animal or parent pair, and the further growth of this germ in connection more or less with the parent or with provision made by it.

"*Phylogenesis* is the supposed development of a species in the course of geological time, and by the intervention of long series of species, each in its time distinct, and composed of individuals each going regularly through a genetic circle of its own."

Let us restate the recapitulation theory in the light of our definitions. The recapitulation theory assumes that the embryonic development of the individual repeats the supposed evolutionary history of the species.

A briefer form of the theory is, that ontogeny is an epitome of phylogeny.

It is quite apparent that this is an argument from analogy and that it is attended by all the weakness incident to such a form of reasoning.

Does the recapitulation really recapitulate?

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[2] "Modern Ideas of Evolution," pp. 137, 138.

If the theory of evolution is true, the vertebrate animal must have developed from an invertebrate ancestor, and according to the recapitulation theory, the vertebrate in its embryonic development should recapitulate the embryonic development of its supposed invertebrate ancestor. But does it?

"It is well known, however," says Fairhurst,[3] "that there are radical differences between the embryos of vertebrates and invertebrates. Worms and other articulates in embryo lie doubled backwards around the yolk, while all vertebrates are doubled in the opposite direction.

"According to the theory that the ebryonic condition is a recapitulation of the stages of organic evolution, this fundamental fact of invertebrate embryology ought to have been preserved by the vertebrate, and it ought, at least, to pass through a stage of development bent backwards around the yolk. Evolution gives no account of this reversal of position by the vertebrates."

In this particular we note that the vertebrate fails to follow suit.

Again, G. Stanley Hall[4] says, "Basal and lapidary as is the great biogenic law that the individual recapitulates the growth stages of his race, the work of Appel, Keibel, Mehnert, and many others has demonstrated abundant inversions of it. The heart, e. g., in the individual develops before the bloodvessels, but this reverses the phylogenetic order. The walls of the large vessels develop before the blood-corpuscles, while the converse was true in the development of the species."

Let us examine this quotation.

This so-called "great biogenic law" proves to be no law at all, but merely a theory—a theory flatly contradict-

[3] "Organic Evolution Considered," p. 145.
[4] "Adolescence," vol. I, p. 55.

ed by the facts. A law, in nature, is a formulated statement as to how things behave. In this case the law(?) does not accord with the facts. Consequently it is not a law of nature.

And further, the writer frankly admits that "abundant inversions" of the law have been demonstrated.

It would seem that the law should be restated so as to read, "The individual recapitulates the growth stages of his race, but in an inverse order."

If the recapitulation theory is true, nature has proved to be a very poor historian, since she has so frequently reversed the order of events. The admissions made are sufficient to indicate the weakness of the theory as a proof of evolution.

Not only does the embryonic development of the individual reverse much of the theoretical phylogenetic order, but it *omits* much of the record.

Professor W. B. Scott[5] says, "Admitting recapitulation to the fullest extent, it is evidently a physical impossibility that it should be a perfect repetition of phylogeny; very much of the long story must be omitted."

And Fairhurst[6] says, "Why should the whole first half of the history of evolution be not even hinted at in the epitome? And why should the Monotreme and the Marsupial be totally forgotten? While the remembrance of all the others is so jumbled together that we cannot tell whether or not the historian would remember any one of them in any definite way. I regard the so-called epitome as being mostly imaginary."

But inversion and omissions of large parts of the record are not the only difficulties in the way of proving the recapitulation theory. The advocates of the theory have to contend with what have been called "spurious

[5] "The Theory of Evolution," p. 58.
[6] Op. cit., pp. 147, 148.

additions to the record." Certain features found in the embryonic development that do not correspond to the theoretical phylogenetic record are explained as additions made to adapt the embryo to its environment. These features are called cenogenetic (newly acquired) to distinguish them from those that are assumed to be recapitulatory or palingenetic.

The difficulty involved in distinguishing between cenogenetic and palingenetic features is pointed out by Gegenbauer, as quoted by Scott,[7] "If we are compelled to admit that cenogenetic characters are intermingled with palingenetic, then we cannot regard ontogeny as a pure source of evidence regarding phyletic relationships. Ontogeny accordingly becomes a field in which an active imagination has full scope for its dangerous play, but in which positive results are by no means everywhere to be obtained. To attain such results, the palingenetic and cenogenetic phenomena must be sifted apart, an operation which requires more than one critical grain of salt. On what grounds shall this critique be based? Assuredly not by way of a vicious circle on the ontogeny again; for if cenogenetic characters are present in one case, who will guarantee that a second case, used for a comparison with the first, does not likewise appear in cenogenetic disguise? If it once be admitted that not everything in development is palingenetic, that not every ontogenetic fact can be accepted at its face value, so to speak, it follows that nothing in ontogeny is immediately available for the critique of embryonic development. The necessary critique must be drawn from another source."

It is evident that this mixture of so-called cenogenetic and palingenetic characters in the embryo offers a puzzle that is incapable of a scientific solution. The best the

[7] Op. cit., p. 60.

evolutionist can do is to call all characters cenogenetic which do not harmonize with his theory of descent. But that, of course, begs the whole question at issue.

A cenogenetic character, then, is one that does not correspond with the evolutionist's theory as to the ancestral line of descent of the species to which the individual belongs.

A palingenetic character is one that does correspond with the evolutionist's theory. This is another case of stringing selected beads.

Gegenbauer's statement that "ontogeny accordingly becomes a field in which an active imagination has full scope for its dangerous play ,but in which positive results are by no means everywhere to be obtained," seems to be corroborated by a quotation of Scott's[8] from E. B. Wilson, who says, "But while fully recognizing the real and substantial fruit of the theory, we should not close our eyes to the undeniable fact that it, like many another fruitful theory, has been pushed beyond its legitimate limits. It is largely to an overweening confidence in the validity of the embryological evidence that we owe the vast number of the elaborate hypothetical phylogenies which confront the modern student in such bewildering confusion. The inquiries of such a student regarding the origin of any of the great principal types of animals involve him in a labyrinth of speculation and hypothesis in which he seeks in vain for the conclusions of even an approximate certainty."

The theory of recapitulation may have proved valuable in stimulating biological research, just as the theory of perpetual motion has stimulated research in the field of physics. However, the theory of perpetual motion has been pretty generally given up. And a theory which,

[8] Op. cit., pp. 61, 62.

when scientists try to apply it, results in a vast number of "elaborate hypothetical phylogenies" and involves the student "in a labyrinth of speculation and hypothesis," and which does not afford conclusions of "even approximate certainty," might well be added to the long list of discarded hypotheses.

We hear a great deal about the "gill-slits" or "gill-arches" of the human embryo. These so-called "gill-slits" or "gill-arches" observed on the sides of the neck of the human embryo are often and confidently cited as a proof of man's descent from a fish-like ancestor.

The average layman is rather helpless in the face of such an argument because he is not in a position to determine whether or not the argument is scientifically sound.

Of this argument, Professor A. Sidgwick of Cambridge, ("Darwin and Modern Science," p. 175) as quoted by Bishop,[9] says, "It is useless to say, as Weismann has stated, that it cannot be disputed that the vestiges of gill-arches and gill-clefts, which are peculiar to one stage of human ontogeny, give us every ground for concluding that we possessed fish-like ancestors.' The question at issue is: Did the pharyngeal arches and clefts of mammalian embryos ever discharge a branchial function in an adult ancestor of the mammals? We cannot, therefore, without begging the question at issue in the grossest manner, apply to them the terms 'gill-arches' and 'gill-clefts.' "

As will be noticed, according to Professor Sidgwick, there is no evidence that the pharyngeal arches and clefts of mammalian embryos ever served as branchiae or gills in any adult ancestor of the mammalia—which would include man. Accordingly, the terms used, "gill-slits" and "gill-arches," since they do not indicate function, simply beg the whole question at issue.

[9] "Evolution Criticized," pp. 77, 78.

Bishop[10] also quotes Bergson as follows: "It has been necessary to reject the almost classical theory of the specificity of embryonic gills ("Creative Evolution," p. 79.)"

And McCann[11] quotes Wasmann ("The Problem of Evolution," p. 61) to much the same effect: "The so-called branchial arches and clefts are merely curves and folds of the pharynx which are quite unimportant in themselves eventually develop into something bearing no resemblance to real branchial arches or clefts. They are, in fact, Pharyngeal arches and clefts.

"In the case of fish to whose existence gills are essential a similar arrangement develops into real gills, and so with regard to fish alone it is correct to speak of real branchial arches and clefts as existing in the embryo."

The recapituation theory, with its gill-slits extracted does not seem nearly so formidable and dangerous. Man's relation to a fish-like ancestor, based on superficial embryological resemblances, proves to be indeed a *fishy* theory.

What is the attitude of scientists toward the recapitulation theory? Do they hold to it in spite of inversions of, omissions from, additions to the record, in addition to the perversion of the facts?

It must be admitted that there are ardent evolutionists who are still using the theory of recapitulation as a part of their propaganda, especially in popular articles in papers and magazines, and in books intended for those not informed as to the facts of science.

Others are ready to admit that the theory offers little or no support to the theory of evolution.

I shall quote a number of these as cited by Bishop.[12]

He quotes Professor A. Sidgwick of Cambridge

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[10] Op. cit., p. 79.
[11] "God or Gorilla," p. 112.
[12] "Evolution Criticised," pp. 78, 82, passim.

("Darwin and modern Science") as follows: "After 50 years of research and close examination of the facts of embryology the recapitulation theory is still without satisfactory proof" (p. 176).

And Professor V. L. Kellogg says, "The proof that man is descended from a fish because he has gill-slits at one period in his individual development is not of the sort to rely on confidently. The recapitulation theory of Fritz Müller and Haeckel is chiefly conspicuous now as a skeleton on which to hang innumerable exceptions," and further, "The recapitulation theory is mostly wrong; and what is right in it is mostly so covered up by the wrong part, that few biologists longer have any confidence in discovering the right."

Let me repeat—"and what is right in it is mostly so covered up by the wrong part that *few biologists longer have any confidence in discovering the right.*"

Mr. C. H. Hurst, in *Natural Science,* 1893, as quoted by Professor E. D. Cope, ("Primary Factors of Organic Evolution," pp. 205, 206) says, "My object now is to show that in neither case can a record of the variation at one stage of evolution be preserved in the ontogeny, much less can the ontogeny come to be a series of stages representing in proper chronological order some of the stages of adult stucture which have been passed through in the course of evolution." And further: *"There is no parallelism between the ontogeny and the phylogeny of either a bird or any other animal whatever.* A seeming parallelism will fall through when closely examined."

Professor F. W. Gamble, in *The Animal World,* in speaking of the recapitulation theory says, "The question is one of enormous difficulty, and the confident affirmation of twenty years ago is now rarely heard" (p. 231). And "Man is at no time a fish, an amphibian, or a reptile, as it is somewhat crudely put" (p. 232).

Professor E. W. McBride, in his *Zoology,* says, "The recapitulatory interpretation of life-history was pursued with such fervour during the latter part of last century that it provoked a reaction, and many naturalists now speak slightly of this theory" (p.76).

Even Weismann, an advocate of the recapitulation theory, admits, in the second volume of *The Evolution Theory,* "The ontogenetic evidence for phylogeny has been so much distorted by natural selection that it is probably the worst we have" (p. 251).

And Wasmann says, "The resemblances between the human embryo and that of the other vertebrates are so superficial that His, W. von Bischof, and even Karl Vogt, and many other recent and thorough students of comparative embryology have protested against Haeckel's significant identities" (Modern Biology, p. 455).

These are only a few selections from a list of scientists cited by Bishop.

It is to be fervently hoped that the conclusions of eminent European scientists will in time become known to our leading American evolutionists and that they will cease to advocate a theory that was in high repute in Europe a quarter century or more ago. It hurts our pride as Americans to have our own evolutionists straggling along in the rear of the scientific procession.

In the light of the changing views as to the value of the recapitulation theory—confidently maintained twenty-five years ago, and now as heartily rejected by many leading scientists—what is the meaning of the expression "Science teaches"? "Science teaches" various things at various times and even at the same time. The expression, at best, is merely an expression of current scientific opinion. As used by many writers it does not have even this value, since it is used to preface opinions that are not generally accepted by scientists. It is a vicious and mis-

leading form of expression, when used, as it so commonly is, to bolster up mere opinions and to give them the appearance of scientifically determined facts or laws.

The word "law," also, is used by many scientists in a way that is unwarranted and misleading. It is frequently used instead of theory.

Professor A. D. Sidgwick, as quoted by Bishop,[13] in speaking of what is known as the Law of von Baer "that embryos of different species of animals of the same group are more alike than the adults," says, "Its truth has been seriously disputed. If it were true we should expect to find that the embryos of closely similar species would be indistinguishable from one another, but this is notoriously not the case."

Another example is furnished by Professor Scott:[14] "Thirty years ago the recapitulation theory was well-nigh universally accepted, according to which the individual development, or ontogeny, was regarded as an abbreviated repetition of the ancestral history of the species, or phylogeny. Haeckel called this theory the fundamental biogenetic law, and upon it he established his whole 'History of Creation.' Nowadays that 'Fundamental law' is very seriously questioned and by some high authorities is altogether denied."

From these examples—and they might be multiplied many times—we learn that some, at least, of the 'laws of nature' are only transient in character and are liable at any time to be set aside through fuller knowledge of the facts involved. This substitution of "law" for "theory" as a means of designating a hypothesis very naturally and properly brings the term "law" as used by scientists under suspicion. The two cases cited constitute clear cases of false pretence.

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[13] Op. cit., p. 77.
[14] "The Theory of Evolution," p. 57.

Undoubtedly the embryos of the higher animals do show some degree of resemblance. Some measure of similarity among the embryos of such animals is not surprising. They all begin as egg-cells and it would be difficult, if not impossible, to develop into mature animals with so many points in common as skulls, spinal columns, ribs, and limbs, without showing some resemblances in their embryonic stages. The Creator would have had to exercise a great deal of ingenuity in order not to leave some features that the evolutionists might seize upon in proof of their theory. We have already found that with all the lack of correspondence between ontogeny and the evolutionist's imaginary phylogeny, there are still some evolutionists who think the recapitulation theory has value —at least for propaganda purposes.

Haeckel and others have argued that the similarities observed in the embryos in different animals point to a common ancestor. Haeckel, accordingly, constructed a tree showing the descent of all animals from an elementary form—called the moneron—which he supposed to have originated by spontaneous generation. Haeckel's tree indicates the various heights at which the different animals—not in man's direct line of descent from the moneron—branched off from the trunk of the family tree. Therefore, everything, from the point at which a certain animal line—the monkey, bat, or whale—branches off from the trunk, down to the moneron at the root of the tree would constitute an ancestry common to man who occupies the topmost bough and the animal out on a particular limb. For example, the whale constitutes one of these highest limbs on the tree. Therefore, the whale and man have a great many common ancestors. The bat branched off even farther up on the tree. Consequently it has more of its ancestry in common with man than the whale has.

But another theory has been advanced that splits our theoretical family tree into many parts and transforms each of these into a separate tree. So that instead of one tree we have many trees each growing out of a different ancestral form. The spreading chestnut tree has become a thicket or grove of trees. This is the so-called polyphyletic theory—there have been many separate lines of descent from different primitive cells, rather than all from one kind and with a common ancestry.

This theory, if true, shatters the elaborate recapitulation theory worked out by those who claimed to find in embryonic similarities proof of a common ancestry for all animal forms. And Bavinck[15] says, "Most botanists, zoologists, and palaeontologists are at present believers in polyphyletic development."

We may well sum up the principal arguments against the theory of recapitulation. We have found that the embryo does not repeat the theoretical phylogeny in the proper order, that there are omissions from the records, that there are what Professor T. H. Morgan[16] refers to as "adaptations and falsifications of the ancestral records." And, if the polyphyletic theory of descent is true, the argument for a common ancestry for man and the animals based on the recapitulation theory must be false. It is not strange that so many scientific authorities have already given the theory up as scientifically incapable of proof.

Another argument for evolution, closely related to the one just considered, is based on the presence in the higher animals and man of so-called rudimentary or vestigial organs. These organs, it is affirmed, are degenerate in form and no longer functionally active, reminders and remainders of once useful organs.

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[15] "Philosophy of Revelation," p. 333.
[16] A Critique of the Theory of Evolution," p. 17.

Professor Wiedersheim thought that he could point out one hundred and eighty rudimentary organs which constitute man's "museum of obsolete anatomies."

Just how many of these organs, rated as useless heirlooms by over-zealous evolutionists, are really without function no one is in a position to say. However, this much is known: quite a number of organs that a few years ago were considered embarrassing survivals from animal ancestors that had some use for them are now known to serve a useful purpose in the bodily economy.

Among the organs pronounced useless, but later found by scientists to have a useful function, are the tonsils, the vermiform appendix, the thyroid gland, the thymus gland, the pituitary body and the pineal gland.

The evolutionists' method of treating a so-called vestigial or rudimentary organ is illustrated in Jordan and Kellogg's[17] discussion of the pineal body or gland.

Of this body they say, "Within the brain of man, near the optic lobes, is a little spheroid structure scarcely larger than a pea, known as the 'pineal gland' or conarium. It has no evident function, and Descartes once suggested that it might be the seat of the soul. It is larger in the embryo and still larger in the brain of some of the lower vertebrates. Recent investigations have shown that it is especially developed in certain lizards, notably in the very primitive New Zealand lizard of the genus Sphenodon (Hatteria) and that in these lizards, the pineal body ends in a more or less perfect eye-like structure placed between the true eyes in the center of the forehead. A trace of this eye is shown in the limbless lizard called slow-worm (Anguis), of Europe, and in several American species. In the horned toad (Phrynosoma) its place is covered by a translucent pearly scale. These lizards have in fact three eyes and the pineal body is the nervous ganglion

[17] **"Evolution and Animal Life," pp. 175, 176.**

from which the third eye arises. The natural conclusion from this that all vertebrates originally had three eyes, is probably a too-hasty one. Perhaps the pineal body was an organ of sense, which developed into an eye in the lizard and their ancestors only, not in any of the amphibians or fishes, and not in any mammals or birds, although these are descended from reptilian stock. Whatever the origin or primitive function of the pineal ganglion, its existence in man as a vestigial organ is due to the persistence of heredity." (The work from which I have just quoted was copyrighted in 1907.)

We have here a small spheriod body about the size of a pea. The authors do not know that it has any function. According to evolutionary logic it is a vestigial organ. They treat it as such. The next thing is to find where it came from. It is still larger in the embryo. This would seem to indicate that it had a functional value in some ancestor whose characteristics are preserved in the embryonic stage. In certain lizards it "ends in a more or less perfect eye-like structure." "In the horned-toad (Phrynosoma) its place is covered by a translucent pearly scale." Thus the horned-toad (a form of lizard) is brought in as one of our relatives—though not in the direct line, but only as a collateral branch having, with us, an amphibian ancestor. It seems a far cry from man to the horned toad. But where "science" leads we must follow, even though its authority results only in the resemblance of the pineal body in man and a ganglion from which the third eye of the lizards arises. Did all vertebrates originally have these eyes? While that is the "natural conclusion," it does not seem safe to follow *natural conclusions*. There is a noticeable absence of three-eyed ancestors in the direct line of man's descent from the moneron, as sketched by Haeckel. Nothing remains but to hazard a conjecture. "Perhaps the pineal

body was an organ of sense"—the authors do not even venture a guess as to what function it served—"which developed into an eye in the lizards and their ancestors only." Here we have the pineal body ranked as a vestigial organ—an organ once useful, but rendered useless by changed conditions of life—and traced back to an *unknown organ* of an *unknown animal,* assumed to be the common ancestor of man and the lizard.

What is the matter with this piece of reasoning? It starts by assuming the very thing to be proved—the vestigial character of the organ in question. It would not constitute scientific reasoning even though no more were known about this organ than was known when the authors wrote their book, because it is merely an argument from ignorance.

All this effort comes to naught when we learn that physiologists find this gland not to be vestigial but to have a very important function in the development of the physical organism of the child.

Thus passes one of the stock arguments for evolution, a long-time favorite of college students who accepted it on the authority of "science."

It may not seem irrelevant at this point to quote a few lines from the "Prefatory Note" to the volume from which I have just quoted. "To the general reader we may perhaps with propriety address the following words, used to the students in the opening lectures of the course:

"We cannot talk long without saying something others do not believe. Others cannot talk long without saying something that we do not believe. We wish you to accept no view of ours unless you reach it through your own investigation. What we hope for is to have you think of these things and find out for yourselves."

What is the value of such an admonition to the average student or general reader? It is nil.

One might just as well suggest to the puny youth that, if his is a righteous cause, he enter the ring and try conclusions with one of the fistic stars of the day. Every one knows he would be doomed to defeat.

The average student or general reader has just as good a chance in the arena with the university professor equipped with the evolutionary gloves. The student or general reader lacks both the knowledge of the subject and of scientific method necessary to evaluate the evolutionary propaganda presented in lectures and texts. The authority of the lecturer or writer, his ingenious and plausible presentation of the evidence favorable to his theory, added to the ignorance of the student, usually do the work and the desired result is attained—the student becomes a convert to the theory. College students generally are at the mercy of their instructors and finish their course believing what they have been taught in the classroom.

Are evolutionists consistent in their logic? They are not.

As Bavinck[18] suggests: "If the rudimentary tail of man is to be looked upon as an argument for his animal descent, then certainly the breasts of the male should be a reminder and a remainder of the period when man was androgynal; but few are inclined to draw this conclusion."

Since the breasts are found in the male today, it seems not only a legitimate inference, but also a necessary one, that this androgynal (uniting both sexes in one individual) period must have been found within the mamalian line of descent.

As Darwin[19] was unable to discover a hypothetical androgynal ancestor nearer to man than certain species of fish having such a character, he was led to "suppose" that

[18] "Philosophy of Revelation," p. 151.
[19] "Descent of Man," pp. 157, 159.

during a former prolonged period male mammals aided the females in nursing their offspring. A reduction in the number of offspring, he imagines, freed the males from such a duty and as a result the organs became inactive in the males.

Let us notice briefly the scientilc logic of the two cases just considered; the pineal gland and breasts in human males. One of these arguments is based on a mistake, the other on a fact.

The treatment of the pineal gland by the evolutionists showed how they traced a rudimentary organ, that was not a rudimentary organ, back to a very different sort of an organ. An indispensable ductless gland in man was traced back, in imagination, to an eye in the lizard. That was going a long way for evidence. The sequel proved it to be a fruitless errand. How unscientific the whole procedure was we have already seen. It is best to be sure of your facts before you try to explain them. And a few years ago this theory had back of it the authority of science.

In the second case, the evolutionists start with a fact, the presence of functionless breasts in males of the human species. These are assumd to be rudimentary survivals which point to an androgynal ancestor. The nearest one in our hypothetical ancestral tree is to be found among the fishes. But since the fish does not possess breasts it is necessary to suppose that some hypothetical mammalian ancestor helped to nourish the family offspring. As this is mere theory, it falls far short of constituting scientific evidence. This argument illustrates the effort of evolutionists generally to produce conviction by suggestion of mere possibilities where evidence is lacking. The effect of a series of suggested possibilities is cumulative and serves as a substitute for facts in the case of immature minds.

The presence of supernumerary mammae or breasts, sometimes found in human beings, indicates, according to Darwin,[20] a reversion to some ancestral form so endowed. The varied manifestations of this phenomenon are such as to make conclusions drawn from it rather difficult to account for. The presence of five mammae in one individual is significant, especially since one of them was located medially. This is worthy of notice since certain of the cheiroptera (bats) possess a medial mamma. This, too, impresses one as logically a long shot, since the bat is not in the direct line of our hypothetical ancestors. According to Haeckel, the bat is out on one of the branches of our hypothetical family tree. Under the circumstances this does not impress one as a very conclusive argument.

The presence of these supernumerary mammae in the armpit, on the back and on the thigh does not make the case for evolution any stronger. If the medial location is significant of our relation to the bats, the locations on the thigh or back should also have significance. It is poor logic that only works part time.

Darwin[21] also takes up the matter of supernumerary digits. This is called polydactylism.

He says, "In the above work ("Variation of Animals Under Domestication") I also attributed, though with much hesitation, the frequent cases of Polydactylism in men and various animals to reversion. I was partly led to this through Professor Owen's statement, that some of the Ichthyopterygia (an order of Mesozoic reptiles) possess more than five digits, and therefore as I supposed, had retained a primordial condition; but Prof. Gegenbaur disputes Owen's conclusion . . . . . I was chiefly led to the conclusion that the presence of super-

[20] Op. cit., pp. 35, 36.
[21] Ibid., p. 36, footnote, p. 38.

numerary digits might be due to reversion from the fact that such digits, not only are strongly inherited but, as I believed, had the power of regrowth after amputation, like the normal digits of the lower vertebrata. But I have explained in the Second Edition of my "Variation Under Domestication" why I now place little reliance on the recorded cases of such regrowths . . . . . But at present it is the safest course to give up altogether the idea that there is any relation between the development of supernumerary digits and reversion to some lowly organized progenitor of man."

Let us notice the reasons given by Darwin, for abandoning the idea that supernumerary digits furnish an argument for reversion to a lower form of life that might be considered an ancestor of man. In the first place, he found that the one early form of life with which he might relate man—a reptile at that—could not certainly qualify by possessing more than five digits. In the second place, he was misled into believing that supernumery digits grew out again after amputation—a very startling idea had it proved to be true. So after all it seemed better to abandon the idea that supernumerary digits furnished an argument for reversion and so for evolution.

It will be remembered that, according to Darwin, supernumerary mammae constitute an argument for reversion. Supernumerary digits, according to the same authority, do not do so. Why the difference? The answer is obvious. It is easy to find hypothetical ancestors of man possessing more than two mammae; it is not possible to find such hypothetical ancestors possessing extra digits.

It is difficult for the uninitiated to understand why supernumerary organs should prove reversion in one case and not in another. The rule followed is this: If an abnormality of structure in man can in any way be shown to be similar to some feature in a lower animal of any

description, the abnormality is an evidence of reversion, and genetic relationship; if it cannot be so related—well, it has no significance. It is an application of a working principle of the evolutionists: *Stress all likenesses, ignore all differences.* Such reasoning is the work of a special pleader and not of an open-minded scientist.

CHAPTER XI

THE DIFFERENT THEORIES OF EVOLUTION

It is sometimes affirmed that the fact that there are different theories of evolution does not in any way affect the truth of evolution. What truth is there in such a position?

In the first place, there is a subtle confusion of fact and theory. A *fact* is something existent, a matter of knowledge, something established. A *theory* is something that is hypothetical or uncertain. A theory once established ceases to be a theory and becomes a fact.

If we have an established fact, it is independent of theories. A fact may be mysterious, but that in no way casts doubt on the fact itself. There may be a number of theories offered in explanation of such a fact. That a number of theories are advanced to explain a given fact does not render the fact uncertain. In other words, if a thing is known to be a fact it is not affected by theories.

The case of a theory is different. Evolution is a theory. The different evolutionary theories are theoretical attempts at explaining how evolution may have taken place. They are hypotheses used to supplement a hypothesis.

The general theory of evolution belongs in the realm of philosophy. It is a philosophic theory. The various theories as to the *method* of evolution are merely scientific hypotheses.

It must be admitted that evolution, as contrasted with creation, is not a self-evident truth. It must also be

admitted that it is not a demonstrable fact. If it is not a self-evident truth or a demonstrable fact it is in need of proof. This proof the advocates of the different theories of evolution have endeavored to supply.

A number of theories have been advanced. Of these we shall consider the best known. It is evident that none of these has been scientifically established or it would be generally accepted by all those qualified to pass on the evidence. It is a well-known fact that there is a great divergence in the views of naturalists as to how evolution may have taken place.

Let us first consider Lamarckism.

Lamarckism, according to the Standard Dictionary, is "the theory of descent or evolution propounded by Lamarck, which assumes that species have become developed by the efforts of an organism to adapt itself to new conditions, and by inheritance of the changes thus produced; it is often applied in recent times to the belief in the inheritability of acquired characteristics, in opposition to the views of Darwin and Weismann."

The latter part of the definition gives the impression that Darwin did not believe in the inheritance of acquired characteristics or use inheritance. Darwin accepted this idea of Lamarck, but made it secondary to the natural selection of chance variations.

Darwin[1] recognized the Lamarckian principles of use and disuse as in part determining the direction of evolution. "In infants long before birth, the skin on the soles of the feet is thicker than on any other part of the body; and it can hardly be doubted that this is due to the inherited effects of pressure during a long series of generations." "The inferiority of Europeans, in comparison with savages in eyesight and in other senses, is no

[1] "Descent of Man," p. 32.

doubt the accumulated and transmitted effect of lessened use during many generations."

According to Spencer, the Lamarckian factors—influence of environment and use and disuse—were the most powerful factors in the process of evolution.

James Iverach[2] quotes Herbert Spencer as follows: "Either there has been an inheritance of acquired characteristics, or there has been no evolution" (Contemporary Review, March, 1893, p. 446.) He also said, "A right answer to the question whether acquired characters are or are not inherited underlies right beliefs, not only in biology and psychology, but also in education, ethics, and politics" (May, 1893, p. 730).

As we see from the quotations cited, Spencer was willing to stake the truth of evolution entirely on the question of the inheritance of acquired characters.

Conn[3] tells us that for twenty-five years acquired and congenital characters were considered as much alike by evolutionists. "Later in the discussion, as difficulties in the way of natural selection accumulated, some scientists, as we have already noticed, found a refuge in the Lamarckian factors, since they offered variations in sufficient abundance where needed. The American Neo-Lamarckian school took up again the views of Lamarck, and, with some modifications, adopted them as the primary agents in producing the origin of the species. At first the dispute between this new school and the Darwinians was simply a question of degree, the new school regarding the Lamarckian factors as a primary cause of evolution and natural selection as a secondary cause, while the Darwinians regarded natural selection as the chief cause and the Lamarckian factors as a secondary.

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2 "Evolution and Christianity," p. 133.
3 "The Method of Evolution," p. 194.

"But with Weismann all this was changed. If Weismann's theory of heredity be a true one, then the Lamarckian factors can count for nothing and the Neo-Lamarckian school is entirely wrong. The environment does not affect the germ plasm and cannot therefore affect posterity. The environment cannot be called upon even to the extent of furnishing variations for natural selection to act upon."

We see that we have in the Weismannian theory of heredity a flat contradiction of the Lamarckian Theory as to the inheritance of acquired characters.

Lankester joins Weismann in his opposition to Lamarckism. Alfred Russell Wallace is also listed among those opposed to the Lamarckian view.

Guenther, as quoted by Bishop,[4] says: "The Lamarckians say that certain mammals, such as whales and walruses, have almost entirely lost their heavy coat because of constant action of the water. In other animals the water is said to have formed horny plates on the mucous lining of the palate, as in the tortoise, the duck-bill, and the whale. We may ask, then, why the water has not reduced the fur of the otter, the beaver, the seal and the water-rat, and why we find no horny plates on the palate of the crocodile, the dolphin and other aquatic animals. The external influence is the same in the case of each animal. Why is there a different reaction in each?" (Darwin and the Problems of Life, p. 342.)

The docking of horses' and sheep's tails, the cropping of dogs' ears, the binding of Chinese girls' feet and similar practices seem not in any way to have had any hereditary influence on the individuals concerned.

Professor T. H. Morgan,[5] in speaking of Lamarckism, says: "It was not so long ago that we were taught

[4] "Evolution Criticised," pp. 236, 237.
[5] "A Critique of the Theory of Evolution," p. 32.

that the instincts of animals are the inherited experience of their ancestors—lapsed intelligence was the current phrase.

"Lamarck's name is always associated with the application of the theory of the inheritance of acquired characters. Darwin fully endorsed this view and made use of it as an explanation in all of his writings about animals. Today the theory has few followers amongst trained investigators, but it still has a popular vogue that is widespread and vociferous."

It would seem from the evidence presented that Lamarckism has failed to make good as a theory as to the method of evolution. Darwin's prestige also is somewhat weakened because of the part that Lamarckism played in his theory of natural selection.

CHAPTER XII

DARWINISM

Lamarckism, as we have seen, has been severely criticised and has failed to be scientifically established.

Let us see how Darwinism fares.

Darwin's theory involved a number of factors.

He assumed a period of two hundred million years or more for the production of new forms.

It may not be amiss to note at this point that Sir William Thomson, as cited by Urquhart,[1] argues that not more than twenty to forty millions of years can have elapsed since the earth was a globe of white-hot molten matter. Dr. Croll estimates that less than twelve million years of the earth's history would be available for animal and plant life. Professor Tait allows ten millions at the most for plant life on the earth.

Another assumption was a practically unlimited capability of variation.

This, too, has been seriously questioned or even denied by other scientists. So far as scientific knowledge goes, variation is within definite limits. In fact, animals show a pronounced tendency to revert to the ancestral form when left to themselves.

He believed that these were chance variations—in the sense that the causes were not known—and that they were slight in amount, since, as Darwin affirmed, Nature does not make leaps.

Since more individuals are produced than can survive,

[1] "The Bible: Its Structure and Purpose," vol. II, pp. 40-42.

there is a competition for the necessities of life, as well as an effort to resist or escape enemies and to combat disease and so forth.

This struggle for existence results in a natural selection, or as Spencer expresses it, "the survival of the fittest."

That there is an element of truth in these last two points may be admitted without conceding that they account for the development of life from lower to higher or more complex forms.

In addition to the factors mentioned, Darwin gave a secondary place to sexual selection and to the effects of use and disuse. The latter I have discussed under Lamarckism.

It is interesting to know that Darwin, by his own confession, found difficulty in accepting his own theory. He[2] says: "Long before the reader has arrived at this part of my work, a crowd of difficulties will have occurred to him. Some of them are so serious that to this day I can hardly reflect on them without being in some degree staggered; but, to the best of my judgment, the greater number are only apparent, and those that are real are not, I think, fatal to the theory."

One finds it hard to understand why Darwin should have been staggered by difficulties that he considered only apparent or not fatal to his theory. The attitude of other scientists toward his theory proves that he had sufficient grounds for being staggered.

The difficulties that Darwin refers to are as follows:

"First, why, if species have descended from other species by fine gradations, do we not everywhere see innumerable transitional forms? . . . . .

"Secondly, is it possible that an animal having, for

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2 "Origin of Species," vol. I, p. 129.

instance, the structure and habits of a bat, could have been formed by the modification of some other animal with widely different habits and structure? . . . . .

"Thirdly, can instincts be acquired and modified through natural selection? . . . . .

"Fourthly, how can we account for species, when crossed, being sterile and producing sterile offspring, whereas, when varieties are crossed, their fertility *is unimpaired?*"

The difficulties enumerated were real difficulties in the way of Darwin's theory and are so today.

Mivart,[3] a scientist and contemporary of Darwin, enumerates eight specific objections to the theory of Natural Selection.

Alfred Russell Wallace, one of the authors of the theory of Natural Selection, considered it alone inadequate to account for the large brain of the savage, the human larynx, man's higher mental powers, his esthetic feeling, mathematical capacity, and moral sense.

Townsend[4] quotes Huxley, himself a critic of Darwin's critics, as follows: "After much consideration, and with assuredly no bias against Mr. Darwin's views, it is my clear conviction that, as the evidence now stands, it is not proven that a group of animals, having all the characteristics exhibited by species in nature, ever has been originated by selection, whether artificial or natural."

Professor Fleischmann of Erlangen, as quoted by Urquhart,[5] says: "So, in forty-two years (since the publication of *The Origin of Species*) it has not been possible to discover one single definite example of Natural Selection! When Darwinists talk about the subject, they

[3] "The Genesis of Species," p. 34.
[4] "Evolution or Creation," p. 81.
[5] "The Bible: Its Structure and Purpose," vol. II, p. 56.

still have to rely upon the goodwill and 'pious faith' of their auditories."

Urquhart also quotes Liebig as follows: "Strict scientific search knows nothing of a chain of organisms."

Doctor Dennert, in reviewing the history of Darwinism in Germany, shows how it was generally accepted at first, only to be abandoned when it was found incapable of proof.

Dennert[6] says: "Today, at the dawn of the new century, nothing is more certain than that Darwinism has lost its prestige among men of science. It has seen its day and will soon be reckoned a thing of the past . . . . . It is a fact worthy of special mention that the opposition to Darwinism today comes chiefly from the ranks of the zoologists, whereas thirty years ago large numbers of zoologists from Jena associated themselves with the Darwinian school, hoping to find there a full and satisfactory solution for the profoundest enigmas of natural science.

"The cause of this reaction is not far to seek. There was at the time a whole group of enthusiastic Darwinians among the university professors, Haeckel leading the van, who clung to that theory so tenaciously and were so zealous in propagating it, that for a while it seemed impossible for a young naturalist to be anything but a Darwinian. Then the inevitable reaction gradually set in. Darwin himself died, the Darwinians of the sixties and the seventies lost their pristine ardor, and many even went beyond Darwin. Above all, calm reflection took the place of excited enthusiasm. As a result it has become more and more apparent that the past forty years have brought to light nothing new that is of any value to the cause of Darwinism. This significant fact has aroused doubts as to whether after all Darwinism can

[6] "At the Deathbed of Darwinism," pp. 36, 37.

really give a satisfactory explanation of the genesis of organic forms."

To show how generally Darwin has been abandoned by German scientists, Dennert says: "W. Haake openly disavows Darwinism; and even at the convention of naturalists in 1897, L. Wilser was allowed to assert without contradiction that 'anyone who has committed himself to Darwinism can no longer be ranked as a naturalist.' "

From Dennert's testimony it is quite evident that, so far as scientific thought in Germany is concerned, Darwinism is a generally discarded hypothesis.

Nor has it had easy sailing elsewhere.

Thirty years ago (1895) Jacob Gould Schurman[7] noted a reaction against Darwinism: "There is, as I have already intimated, a feeling—I think I may say a conviction—among scientists of the present day that the Darwinian theory of descent with modifications has been pushed too far, and that corollaries have been drawn from it which a longer and more accurate acquaintance with the facts shows to be altogether unwarranted. Something like a reaction from earlier Darwinism seems now in full force."

Professor Thomas Hunt Morgan,[8] in discussing Darwin and Natural selection, says: "If his views seem to us today at times vague, at times problematical, and often without a secure basis, nevertheless we find in every instance, that Darwin was searching for the *physical causes of variation.*"

Such a tribute to Darwin can hardly be construed as an indorsement of Darwinism.

The weakness of Darwinism is pointed out in the oft-quoted remark of De Vries that while Darwin's theory

[7] "Scientific Agnosticism," pp. 39, 40.
[8] "A Critique of the Theory of Evolution," p. 38.

of natural selection may account for the *survival* of the fittest, it does not account for the *arrival* of the fittest.

Professor W. B. Scott, in order to clear the theory of evolution from the odium attached to Darwinism, hastens to explain that they are not synonymous terms. He quotes Mr. Bateson in opposition to Darwinism as follows:[9] "The transformation of masses of population by imperceptible steps guided by selection, is, as most of us now see, so inapplicable to the facts, whether of variation or specificity, that we can only marvel both at the want of penetration displayed by the advocates of such a proposition, and at the forensic skill by which it was made to appear acceptable even for a time."

Nor, according to Professor Scott,[10] have the paleontologists generally been satisfied with the theory of natural selection. To quote his own statement: "Palaeontologists, whose studies deal with the fossil remains of the ancient plants and animals which once inhabited the earth, but are now altogether extinct, have not, as a rule, been satisfied with the theory of natural selection as an adequate explanation of organic evolution."

It is worthy of note that according to Professor Scott, the paleontologists, as a rule, have not been satisfied with Darwinism.

Supposing that Darwinism is as thoroughly discredited as many eminent scientists—particularly German scientists—have admitted, what is the standing of the evolutionary theory? Is there any satisfactory theory of evolution to fall back on? Lamarckism and Darwinism have been pretty generally deserted by the leading scientists. Is there an adequate substitute? Professor Scott[11] says there is not. He says: "On the other hand,

[9] "The Theory of Evolution," p. 5.
[10] Ibid., p. 22.
[11] Ibid., p. 26.

if Darwin's hypothesis be rejected, there is, it must be frankly admitted, no satisfactory alternative to take its place."

What then is left, if Darwinism fails? Uruquhart[12] says: "It is long since Weismann warned the scientific world that, if they rejected natural selection, they must accept Creation, as nothing else can explain the facts."

Are there any who still adhere to the Darwinian theory? Yes, in the absence of something better.

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[12] "The Bible: Its Structure and Purpose," vol. II, p. 57.

CHAPTER XIII

THE MUTATION THEORY

There is only one other theory of evolution that seems to deserve serious consideration and that is the Mutation Theory of DeVries.

According to DeVries, natural selection serves only as a sieve to sift out the fittest forms after they appear. He attempts to explain their appearance on the scene.

What is the theory? DeVries[1] states it as follows: "The current belief assumes that species are slowly changed into new types. In contradiction to this conception the theory of mutation assumes that new species and varieties are produced from existing forms by sudden leaps. The parent type itself remains unchanged throughout this process, and may repeatedly give birth to new forms. These may arise simultaneously and in groups or separately at more or less widely distant periods."

The volume from which I have quoted contains the lectures delivered at the University of California in 1904.

Shearman[2] comments on DeVries' theory as follows: "Mutation is understood to be the sudden appearance of a new species. But species are not given the same boundaries by all naturalists. Linnaeus gave his species wide boundaries, and advised naturalists to ignore trifling distinctions. After him came Jordan, who worked out narrower limits for species and took account of less import-

[1] "Species and Varieties, Their Origin by Mutation," pref. p. vii.

[2] "The Natural Theology of Evolution," pp. 84, 86.

ant differences. He divided all the species which Linnaeus had described, making in one case two hundred of his out of one Linnaean species. DeVries' new species are of Jordan's not of Linnaeus' kind . . . . .

"But then when we go on to ask whether the new species thus arising shows any progress in the scale of being, any signs of rising above the parent species, any addition to its plan, the answer is not so satisfactory. The new species stands on the same level as the old. . . . . There is change on the same level, but no mounting a step and attaining to a higher level. It is quite conceivable that a long course of mutations, starting from *Oenothera Lamarckiana,* might in the end return to *Oenothera Lamarckiana* again. And this view of the mutations is confirmed when we hear that DeVries' experiments have been repeated by others and the same results obtained. When experiments can be repeated and the results predicted, it is evident that we are not dealing with the occurrence of anything new. What we have before us is the result of manipulating the constant and settled properties of objects which give a similar reaction to similar surroundings . . . . .

"This view of the mutations is not very different from DeVries' own speculations, for he thinks that the new characters which they exhibit are already existing in the parent species in a latent condition. But he has a theory as to how they come to be there which it is not easy to accept. The species, he thinks, has a period of mutation followed by a long period of stability. During the period of stability, by the action of the environment or otherwise, the new forms come gradually into existence, but in a latent state, and when the time of mutation comes they are produced . . . . . Moreover, as the mutation of *O. Lamarckiana,* together with the mutations arising from those mutations, give between twenty and thirty

distinct forms, we have to imagine all these produced simultaneously and side by side by the action of the one environment on the one species, all coming to a head together and all produced in one period of mutation as soon as they were fully formed. It is not a theory which helps us very much to understand how these things come about."

Shearman is not alone in estimating lightly the Theory of DeVries.

Price[3] says: "The much heralded new 'species' of De Vries and others are now known to be merely new factors cropping out; for though they remain constant and breed true, they obey Mendel's Law when crossed with their parental forms, and hence are merely the result of some new combination of factors which can be produced at will by using the same method of combination and segregation."

And Price[4] says in regard to these variable forms: "There is not a shred of scientific evidence that either natural or artificial devices have originated a single genetic factor that was not all the time potentially latent in the ancestry, capable of being produced at will by the proper combination."

The varieties, or mutants, observed or obtained experimentally, are sometimes referred to as "incipient species" or "elementary species." The terms mentioned beg the whole question at issue and are well adapted to deceive the layman who is not familiar with the methods of evolutionary propaganda. The impression given—and no doubt intended—is that some essentially new form has been produced, when it is merely a new or unusual combination of factors.

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[3] "Q. E. D., or New Light on the Doctrine of Evolution," p. 95.

[4] Ibid., p. 94.

Professor Edward C. Jeffrey[5] of Harvard in an article on *The Mutation Myth*—a significant title—in speaking of DeVries' theory says: "It has in fact become so widely accepted on our continent, that it has in many instances been unfortunately introduced even into elementary courses of botanical or biological instruction. Europe has presented a marked contrast to America in this respect, for here the mutation hypothesis of DeVries has been coldly received. It seems clear, however, that the European attitude is more in accordance with the established principles of biology than our own."

In closing his article he[6] says: "The mutation theory of DeVries appears accordingly to lag useless on the biological stage and may apparently be now relegated to the limbo of discarded hypotheses. The zeal, industry and insight of the distinguished plant physiologist of Amsterdam cannot be too highly appreciated. Even although his hypothesis must apparently be given up both on morphological and genetical grounds, it has nevertheless been the cause of a great deal of valuable work which will remain after the motive of it has disappeared. The present refutation has been undertaken in the interest of biological progress in this country. It is now high time, so far as the so-called mutation hypothesis, based on the evening primrose in cultures, is concerned, that the younger generation of biologists should take heed lest the primrose path of dalliance lead them imperceptibly into the primrose path of the everlasting bonfire."

Those who have made an experimental study of Mendel's principles of heredity have found many examples of the *appearance* of unsuspected factors, but without evidence of the *production* of new factors. Till there is evidence of the production of new factors there can be

[5] Science, N. S., vol. XXXIX, No. 1005, pp. 488, 489.
[6] Ibid., p. 491.

no proof—at least from this source—of any such progressive changes and increase in complexity such as are necessarily involved in any real evolution. Factors there are in surprising numbers, and these may be combined in different ways resulting in a multitude of different varieties, but without evidence of the production of a single new factor.

Professor S. J. Holmes[7] of the University of California quotes Professor Bateson as follows: "In spite of seeming perversity we have to admit that there is no evolutionary change which in the present state of our knowledge we can positively declare to be not due to loss."

William Bateson,[8] in an article, *Evolutionary Faith and Modern Doubts,* makes some statements in regard to the present status of the theory of evolution that are of considerable importance in view of his recognized standing as an investigator of the problems of heredity.

He tells us that forty years ago embryology was looked to as a possible means of proving evolution. But embryology failed to furnish the required proof. "So we went on talking about evolution. That is barely 40 years ago; today we feel silence to be the safer course" (P. 56).

"Discussions of evolution came to an end primarily because it was obvious that no progress was being made" (p. 56).

In speaking of the work of the geneticists, he says: "When students of other sciences ask us what is now currently believed about the origin of species we have no clear answer to give. Faith has given place to agnosticism for reasons which on such an occasion as this we may profitably consider" (p. 57).

"We cannot see how the differentiation into species came about. Variation of many kinds, often consider-

[7] Science, N. S., vol. XLII, No. 1079, p. 301.
[8] Science. N, S., vol. LV, No. 1412, pp. 55-61.

able, we daily witness, but no origin of species" p. 57).

"Analysis has revealed hosts of transferable characters. Their combinations suffice to supply in abundance series of types, which might pass for new species, and certainly would be so classed if they were met with in nature. Yet critically tested, we find that they are not distinct species and we have no reason to suppose that any accumulations of characters of the same order would culminate in the production of distinct species" (P. 59).

"I have put before you very frankly the considerations which have made us agnostic as to the actual mode and processes of evolution. When such confessions are made the enemies of science see their chance" (p. 61).

In the closing paragraph of the article from which I have quoted Professor Bateson earnestly reaffirms his faith in the theory of evolution, even though he is ready to admit that the different subsidiary theories necessary to make it more than a pious hope have, in his belief, failed.

This very frank and highly commendable admission as to the bankruptcy of present day evolutionary theory is somewhat marred by two ideas suggested by language used in the last paragraph.

One of these is the reference to the "enemies of science." The writer seems to entertain the idea that those who do not accept the evolutionary hypothesis are "enemies of science"—a highly absurd idea.

The other objectionable feature is the charge of obscurantism brought against the same class of persons. The idea that those who are opposed to the theory of evolution are opposed to enlightenment and the progress of science is another absurdity, only too often indulged in by the advocates of evolution. Strange to say, the benighted opponents of evolution do really rejoice in the advances made in the discovery of new truths.

It does not seem necessary to quote from other scientists who dissent from or question the theory of DeVries. Enough has been said to show that eminent biologists consider it inadequate as a theory of evolution. That being true, it may be classed along with the other theories that have failed to make good.

My purpose in setting forth the facts in connection with the three best known theories of evolution has not been to refute them—that would be a rather ambitious program—but rather to show that up to date they have not been scientifically established.

CHAPTER XIV

EVOLUTION AND CHRISTIANITY

Before considering the relation of the theory of evolution to Christianity, let us first consider the question so frequently asked, Is there a conflect between evolution and religion?

Such a question is a good index of the confusion in thought and the loose thinking that characterizes a very large part of the discussion of the day bearing on the relations of science, philosophy, religion, and Christianity.

Is there, then, a conflict between evolution and religion?

At an earlier stage of our discussion, we defined evolution. In order to intelligently consider the two in their mutual relations, it is necessary to define religion. As commonly used, religion is a belief in a superhuman or supernatural being or beings, together with such doctrines and practices as result from such a belief. An inductive study of religions makes it necessary to give the term a wider meaning. Religion in its broadest sense is any system of beliefs and practices arising from or adapted to satisfy man's religious sense.

There are some religions with which the theory of evolution with its naturalistic philosophy is not in conflict.

Haeckel's religion is an example of this class. Haeckel, as a materialistic monist and atheist, rejected the supernaturalism of Christianity. Moreover, he tells us that he felt the need of some sort of religion as "a new abode for human emotion," and, after sweeping away God, freedom and immortality, substitutes for them the mon-

istic religion of the True, the Good and the Beautiful. While Haeckel's religion can find no logical ground in his materialistic philosophy, it does testify to man's ineradicable religious instinct.

Another interesting example of a naturalistic religion —a religion which repudiates the supernatural—is that of Positivism. Of Comte, the founder of Positivism, Guizot[1] says: "By the most violent of all personified abstractions, he made out of humanity the great being, the real being, sovereign and adorable, and he placed that being in the place of God, declaring himself at the same time to be his chief priest. He had more than once proclaimed that all religion was essentially founded upon the supernatural; and yet a religion all natural—the religion of humanity, the worship of humanity, the church of humanity, were summoned by him to succeed to the Christian religion and to the Church of Christ."

Here we have another religion professedly based on a naturalistic philosophy. It is hardly necessary to call attention to the fact that his ethical ideals are not a product of his philosophy. He is said to have been an admirer of Thomas A. Kempis and his teachings.

A third type of naturalistic religion is that of Huxley.[2] His idea of religion he expresses as follows: "That a man should determine to devote himself to the service of humanity—including intellectual and moral self-culture under that name; that this should be, in the proper sense of the word, his religion—is not only an intelligible, but I think, a laudable resolution. And I am greatly disposed to believe that it is the only religion which will prove itself to be unassailably acceptable so long as the human race endures. But when the positivist asks me to worship 'Humanity'—that is to say, to adore the gen-

1 "Meditations on Christianity," Second Series, pp. 305, 306.
2 "Christianity and Agnosticism," pp. 50, 51.

eralized conception of men as they ever have been and probably ever will be—I must reply that I could just as soon bow down and worship the generalized conception of a 'wilderness of apes.' "

It is evident, then, that the belief in the theory of evolution with its naturalistic philosophy does not necessarily interfere with the adherence to some form of religion. The examples given show that even the atheist, the positivist and the agnostic may have a religion of some sort.

Is there a conflict between evolution and Christianity?

The only method of answering such a question in a satisfactory and conclusive way is by definition of the terms employed.

We have found that evolution is "continuous progressive change, according to certain laws and by means of resident forces." The question at issue is found to be this: Are Christianity and naturalism compatible? Can we accept the naturalistic philosophy of evolution and logically retain our belief in Christianity at the same time?

The answer to that question depends on what we mean by Christianity. In other words, what is a Christian?

Those who call themselves Christians may be divided into three classes.

The term "Christian" is sometimes used to designate those who believe that the Bible *is* the Word of God and who accept it at its face value. Such persons find no difficulty in accepting the Bible as history, its teaching as to prophecy, miracles, God's providential dealings with Israel, the incarnation, the virgin birth, the sinlessness, the teaching, the atoning death and the resurrection of Jesus from the dead. To such persons, the Bible is an inerrant and authoritative revelation of God's plan of salvation.

Others who call themselves Christians see in the Bible

a purely human production, an expression of the religious genius of the Jews, merely one of the ethnic scriptures and not essentially different from the Zend-Avesta, the Koran and other religious literatures.

Between these two extremes there is a third class of persons who believe in more or less of divine inspiration, who place varying estimates on the historicity of the different parts of the Bible, who accept few or many miracles according to individual taste, who believe that the Gospels preserve much or little of Christ's own teaching, and so on *ad infinitum*.

The Christianity of the first sort described is, of course, incompatible with the naturalism of evolution.

The Christianity of the second sort is quite compatible with evolution, but it is not the Christianity of the Bible, nor is it Christianity in the historical meaning of that word. It is simply natural religion wearing the guise of Christianity. If such a religion is Christian, then Confucianism, Mohammedanism and the other pagan religions are Christian and there is no such thing as Christianity in distinction from religion in general. This much is admitted by Strauss[3] when he says: "My conviction, therefore, is, if we would not evade difficulties or put forced constructions upon them, if we would have our yea yea, and our nay nay,—in short, if we would speak as honest, upright men, we must acknowledge we are no longer Christians." It is unfortunate that thinkers of the same school today are not as logical and frank as Strauss.

Of those persons, calling themselves Christians, who determine for themselves the amount of the supernatural they can accept, accepting some miracles and rejecting others, accepting some teachings and rejecting others, it

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[3] **"The Old Faith and the New," vol. I., p. 107.**

may be said that they hold a position that is logically indefensible, because it leaves to the pleasure—if not the caprice—of the individual what he shall accept as supernatural. Each individual is a law unto himself and there are as many different truths as there are individuals. Such views, resting on a subjective basis, are outside the realm of logical defense or refutation.

It is evident, then, that any thorough-going theory of evolution is opposed to Christianity; if by that term we mean Christianity as it is presented in the Bible as a supernatural religion.

The mediating position between naturalism and supernaturalism, as shown in the tendency to limit the supernatural element in the Bible, may or may not go so far as to destroy the essence of Christianity by rejecting the supernatural factor in salvation, without which so-called Christianity is reduced to the level of other man-made religions.

It should be remembered that there is a "Christian view of God and the world." According to this view, man is a product of creation and not of evolution; he is capable of communion with God, he falls into sin—a situation that necessitates a plan of salvation involving a Divine activity down through the ages culminating in the atoning death of the Son of God on the cross.

Over against this we have a theology based on naturalistic assumptions according to which everything in nature is the manifestation of a mysterious power, commonly called God. According to this pantheistic conception of the universe man is simply the outcome of an evolutionary process which in its final and ultimate stage extends, as Dr. S. D. McConnell[4] expresses it, "from the protoplasmic slime to the Son of Man."

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[4] **"Evolution of Immortality," p. 156.**

According to this pantheistic philosophy, which underlies the religious "Modernism" of today, as Bavinck[5] puts it, man "was an animal, he became a man, and after humanizing comes deifying. By way of anticipation the Christian religion illustrates this principle in the person of its founder: in Christ humanity and divinity are one. According to Sir Oliver Lodge, Christ is the glorification of human effort, the upward development of manhood, the highest point of human striving, the supreme flower of our race. All men are potential Christs, all moving on by the development of the forces of our own nature into that Christhood."

If the evolutionary philosophy is true, then the Bible and its teachings are false. Evolution is naturalistic, the Bible is supernaturalistic. Therefore the Bible must be discredited.

What do the naturalistic thinkers do with the Bible? They set about to free it from its supernatural elements. As Strauss expressed it: "The Supernatural must go." As it stands, the Bible contains many things that do not fit in with the naturalistic philosophy.

Those who attack the credibility of the Bible do so under the guise of "Higher Criticism." What is Higher Criticism? It is the historical and literary study of the documents that make up the Bible. Properly used it is a legitimate and helpful method of determining the meaning of the Scriptures.

How do we account for the destructive results of the so-called Higher Criticism of the Bible as illustrated by the work of prominent liberal German critics and their disciples in England and America? It is due to the fact that the leaders in this movement started out with definite philosophic presuppositions and Higher Criticism has

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[5] "The Philosophy of Revelation," p. 15.

been simply a means of attaining an end—the elimination of the supernatural from the Scriptural narrative. As a matter of fact such criticism is not essentially historical and literary; it is rationalistic. It is a rejection of the supernatural and an attempt to explain everything on the basis of the natural. It rejects a supernatural revelation and makes human reason the ultimate standard of truth.

Reference has already been made to the naturalistic presuppositions of Strauss. Naturalism lies at the root of German destructive criticism. William Henry Green[6] says, "It is noteworthy that the partition hypotheses in all their forms have been elaborated from the beginning in the interests of unbelief. The unfriendly animus of an opponent does not indeed absolve us from patiently and candidly examining his arguments, and accepting whatever facts he may adduce, though we are not bound to receive his perverted interpretation of them. Nevertheless we cannot intelligently nor safely overlook the palpable bias against the supernatural which has infected the critical theories which we have been reviewing from first to last. All the acknowledged leaders of the movement have, without exception, scouted the reality of miracles and prophecy and immediate divine revelation in their genuine and evangelical sense. Their theories are all inwrought with naturalistic presuppositions, which cannot be disentangled from them without their falling to pieces."

He further says,[7] "It is notorious that the long succession of distinguished scholars, by whom the divisive hypothesis has been elaborated in its application to the Pentateuch, have been unbelievers in an immediate supernatural revelation. And they have not hesitated to avow

[6] "The Higher Criticism of the Pentateuch," p. 157.
[7] Ibid., pp. 165, 166.

their want of faith in the reality of prophetic foresight and of miraculous powers. The ready method by which these have been set aside is by dexterous feats of criticism. Revelations of truth and duty are brought down to such a period in the history as may fit in with some imagined naturalistic scheme of development. Predictions which have been too accurately fulfilled to be explained away as vague anticipations, shrewd calculations, or lucky guesses, must, as they claim, have been uttered, or at least committed to writing, after the event. Miracles cannot have been recorded by eye-witnesses or contemporaries, but are regarded as legendary exaggerations of events that are entirely explicable from natural causes. It is therefore assumed that they necessarily imply a sufficient interval between the occurrence and the written narrative to account for the growth of the story. A hypothesis wrought out on the basis of these principles, which are throughout covertly assumed, and the critical phenomena most ingeniously adjusted into conformity with them, can lead to no other result than that with reference to which it was shaped from the beginning. While the discussion seemingly turns on words and phrases and the supposed peculiarities of individual writers, the bent of the whole thing is to rivet the conclusion which the framers of the hypothesis have tacitly though steadily contemplated, a conclusion irrefragable on their philosophical principles, viz., that the supernatural must be eliminated from the Scriptures."

It is clear, then, that the destructive results of what is commonly known as "Higher Criticism" is due to the naturalistic presuppositions with which the critics start. Knowing their naturalistic bias, it is easy to predict what will happen to the supernatural elements in the Biblical record. Such a criticism of the Scriptures by the Germans was merely the interpretation of history in terms

of Hegel's philosophy which allows no place for the supernatural. Destructive criticism has more recently defended itself by an appeal to materialistic evolution of the Darwinian type. However, the idealistic monism of Hegel and the materialistic monism of current science are equally in opposition to the supernaturalism of evangelical Christian belief. The attack, then, on the credibility of the Scriptures is merely one phase of the naturalistic view of the world.

The Germans were the pioneers in what is known as the scientific and historical study of the Bible. We hear much about the "assured results" of modern Biblical scholarship. We naturally expect "assured results" to agree. But do they?

One of the assured results (?) of modern criticism is that Moses did not write the Pentateuch, but that it is a composite affair compiled or edited much later than the time of Moses—if such a person ever lived.

Scientific study of the Pentateuch is resorted to in order to determine the number of documents entering into what the critics consider a literary mosaic—but *not Mosaic.*

The critics first developed what is known as the Document Hypothesis according to which Genesis—later applied to the entire Pentateuch—was conceived of as the result of piecing together two documents distinguished from each other by the use respectively of Elohim (God) and Jehovah (Lord).

But were these "assured results" of scientific criticism really assured? Apparently not, for other critics carried the process farther and developed the Fragment Hypothesis. Vater, as noted by Dr. W. H. Green,[8] "finds that Genesis is composed of thirty-eight fragments, varying

[8] Op. cit., p. 71.

in length from four or five verses to several chapters. The other books of the Pentateuch are similarly disintegrated.

Of this theory Dr. Green says, "This may be fitly characterized as the Document Hypothesis run mad. It is a *reductio ad absurdum* furnished by the more consistent and thorough-going application of the principles and methods of its predecessor. Instead of two continuous documents pieced together, paragraph by paragraph, to constitute the Pentateuch as we have it, each paragraph or section is now traced to a separate and independent source."

The unsatisfactory results obtained by this method led to the adoption, by a considerable number of German scholars, of the Supplement Hypothesis. This theory proving inadequate, it was followed by the Crystallization Hypothesis, and that, it turn, by a Modified Document Hypothesis.

From the varying results obtained one begins to suspect that there is a defect concealed somewhere in the "scientific method" of Biblical criticism. But the different hypotheses mentioned, with their varying and contradictory results, give us sufficient insight into what is meant by the scientific method of studying the Bible, and prove to us that the "assured results" of such scientific study are only doubtfully and temporarily *assured.*

The utterly unscientific character of such attempted dissection of the Pentateuch has been illustrated by those who have shown us how the parable of the Prodigal Son, the book of Romans, and other admittedly unitary compositions may be divided into two or more distinct parts with all the plausibility that characterizes the divisions of the Pentateuch into the various documents and fragments exhibited by the destructive critics.

The authorship of literary productions appearing at the present day cannot be determined even by those well acquainted with other work already done by the author. P. Whitwell Wilson,[9] in referring to New Testament criticism, says, "And when I am told by German critics that our Lord could not have uttered the discourse set out in the Fourth Gospel, I appeal once more to my own experience. I have been writing some anonymous articles which aroused curiosity. Not only have my friends decided, on internal evidence as it is called, that I did not write them, but I have heard already of one person, of high literary attainments, who does not deny that he is the author. If one considers how literature is actually produced, one becomes profoundly skeptical of what are called the results of modern research. The 'proof' is often merely hypothesis, and the hypotheses vary, like the fashions."

The results obtained by German—and other—Biblical critics in their attempt to discredit the Bible and thus eliminate its supernatural elements are not such as to commend their methods to those who wish to know the truth. It is an *a priori* and deductive method from start to finish, and assumes the very thing which it supposed to prove—that there is no supernatural factor employed in man's redemption. By the use of such critical methods one could discredit any piece of literature, however, genuine, unitary and authentic. But a method—or methods —that is sufficient to discredit any piece of literature discredits none. It simply discredits itself.

That the reasoning employed by the destructive critics is weak and inconclusive is virtually admitted by Professor Driver in a quotation from his "Introduction to the Literature of the Old Testament" (6th ed., p. 123)

[9] "The Christ We Forget," p. 5.

used by Sir Robert Anderson.[10] Professor Driver says, "We can only argue upon grounds of probability derived from our view of the progress of the art of writing, or of literary composition, or of the rise and growth of the prophetic tone and feeling in ancient Israel, or of the period at which the traditions contained in the narratives might have taken shape, or of the probability that they would have been written down before the impetus given to culture by the monarchy had taken effect, and similar considerations, for estimating most of which, though plausible arguments, on one side or the other may be advanced, a standard on which we can confidently rely scarcely admits of being fixed."

The destructive critics have tried to revise the Bible and have succeeded only in eviscerating it. Why did they—and *do* they—desire to revise it? Because its plain teachings do not agree with their teachings concerning man's religious history.

Did Moses write the Pentateuch? Not so many years ago the critics said, "No." It was impossible, since writing had not been invented, so they said, fifteen hundred years before the Christian Era. Archaeological discoveries have proved that the Egyptians were using written characters approximately a thousand years before Moses and that a century before the Exodus Palestine had its books and schools.[11]

Archaeology has furnished the one effective means of refuting the assumptions and speculations of the destructive critics. The absence, till recently, of external confirmation of the truth of the Biblical narrative had made it impossible to refute the pretensions of the critics. Archaeology has furnished a sufficient rebuke to their attempts at rewriting history and has proved the critics

[10] "Pseudo-Criticism," pp. 19, 20.
[11] Sir Robert Anderson, op. cit., p. 22.

wrong rather than the text. The critics have been interested not so much in the study of religious history as in the *making* of such history. Of course, they had some excuse—not justification. If they were to establish their naturalistic philosophy, Biblical history had to be reconstructed.

Recent archaeological research confirms us in the belief that the historicity of the Bible will remain unimpaired.

We have noticed previously that the critics considered the Pentateuch unhistorical because it did not agree with their ideas as to man's religious development.

Another ground for questioning the historicity of the Pentateuch is to be found in the contention of the critics that the Pentateuch instead of being the work of Moses was the product of writers living centuries later and some of them, at least, unscrupulous in character.

If the theories of the critics as to the authorship of the different books of the Pentateuch were to be accepted as true, then one would have no reason for attributing any real historical accuracy to them. If, for example, the book of Deuteronomy originated as some of the critics have contended, one could not expect it to be in any sense historical.

On this point, Charles Marsh Mead[12] says: "Finally, it may be remarked that it is not to be wondered at that the Graf-Wellhausen theory, after having burdened itself with all these difficulties, has to shoulder also the additional one, that it requires Christians to believe that the most of the Mosaic law was smuggled into currency by bare-faced frauds. The book of Deuteronomy, said by the sacred historian to have been *"found"* in the temple by Hilkiah, is affirmed by the critics to have been *com-*

[12] "Christ and Criticism," pp. 137, 140.

posed at that time, perhaps by Hilkiah, perhaps by Jeremiah or by some unknown man writing in the prophetical spirit. At any rate, the book purports to come from Moses and (we are asked to believe) was deliberately palmed off upon the king and others as such. The end to be gained is indeed supposed to have been a good one; but the means for the attainment of the end are conceived to have been a cunning deception." The purpose of the trick was to enlist the support of Moses' name to boost a reformation that was not making headway. "This one unknown prophet, by the happy device of cheating king, priests, and people into the belief that a hitherto lost work of the great deliverer had come to light, introduced a new era into the religious history of Israel! What would have been thought of his conduct, if the knowledge of it had at that time leaked out, we cannot tell; for no one but the perpetrator (and perhaps the few who were in the secret and faithfully kept it) ever knew anything about it, until in this present century their crafty trick has been found out by pure critical insight! It is hard to determine which to admire most—the shrewdness of the original fraud, or the shrewdness of the detectives who have at last unearthed it! . . . . . A similar performance, according to the radical critics, was enacted some two hundred years later, when the greater part of Exodus, Leviticus, and Numbers was foisted upon the returned exiles as being the genuine original law of Moses, although in fact recently composed by some priest of whom nothing more is known than of the author of Deuteronomy. But he must have been a singularly clever man, if he was able to wheedle such men as Ezra and Nehemiah into believing that the code was genuinely Mosaic."

The radical critics of the Old Testament, if they really measure up to their own claims, possess an ability that is

superhuman and uncanny. However, the fact that they so frequently contradict each other suggests the possibility that they are not infallible.

The critic's attitude toward the New Testament is essentially the same. To make good his pretensions he would need to be omniscient—which is claiming a great deal. Of the radical critics of the New Testament, Professor Mead[13] says, "The critic who selects certain portions of the New Testament as containing the sole authentic description of Jesus Christ thereby proclaims not *how little,* but *how much,* he knows about him. He assumes to know so much more about him than Christendom in general does, that he is able to decide what parts of the New Testament give us an incorrect and untrustworthy account of him. He can have no adequate reason for rejecting the testimony of the other parts of the New Testament, unless it is because there is an irreconcilable difference between this testimony and that which he accepts. In short, he has an *a priori* conception of what Christ and the primitive Christianity must have been, and adjusts the documentary evidence to this conception. That is, he sets himself in opposition to *that* Christ whom Christendom has always believed in, and whom the New Testament as a whole bears witness to, and preaches another Christ and another Gospel.

"It is only by a stretch of charity or of fancy that such a procedure can be called *criticism* at all. The animating and determining impulse in it is a *dogmatic* one. But it calls itself criticism, assumes some of the forms and appearances of a critical process, and may therefore, at at least in a loose sense, be called such."

The discussion and quotations adduced should make it evident that the radical criticism of the Scriptures is a

[13] Ibid., pp. 42, 43.

dogmatic procedure, having its basis in a naturalistic philosophy. Criticism that is merely an attempt at reconstructing religious history in terms of naturalism, that is compelled to remake history, and that can clear the ground for its own theories by unproved charges of forgery—forgery that brought about a great religious reformation in Israel—such criticism is not morally or logically very convincing.

What place is there for miracles in an evolutionary philosophy? None, in the evangelical meaning of that term.

Miracles are the work of a supernatural power at work in the world. Naturalism denies the existence of any such power. The deist, who also rejects miracles, admits the existence of such a power but denies that it is active in the affairs of the world.

What is a miracle? Various definitions have been formulated, possibly none of which has been quite complete. John D. Davis, in his "Dictionary of the Bible," has defined a miracle as follows: "Miracles are events in the external world, wrought by the immediate power of God and intended as a sign or attestation."

There are two main sources of objections to miracles. One is a deistic theory of the world and God's relation to it. The other is a pantheistic conception of the world.

According to the deistic view of the world, a miracle would be a violation of law. According to the pantheistic philosophy there is no God apart from the world and consequently any special, personal activity of God in the world is impossible.

John Stuart Mill, as quoted by Alexander Mair,[14] states the position of those who believe in miracles in answer to the charge that miracles would constitute a

[14] "Studies in Christian Doctrine," p. 359.

violation of the laws of nature. "There is, therefore, no more a supposition of violation of law in supposing that events are produced, prevented, or modified by God's action, than in the supposition of their being produced, prevented, or modified by man's action. Both are equally in the course of nature, both equally consistent with what we know of the government of all things by law.

"Those who thus argue are mostly believers in free-will, and maintain that every human volition originates a new chain of causation, of which it is itself the commencing link, not connected by invariable sequence with any other anterior fact. Even, therefore, if divine interposition did constitute a breaking in upon the connected chain of events, by the introduction of a new originating cause without root in the past, this would be no reason for discrediting it, since every human act of volition does precisely the same. If the one is a breach of law, so are the others. In fact, the reign of law does not extend to the origination of volition . . . . . The alleged (above) analogy holds good; but what it proves is only what I have from the first maintained—that divine interference with nature could be proved if we had the same sort of evidence for it which we have for human interference."—Mill, *Three Essays,* pp. 226, ff.

It is clear, then, that in J. S. Mill's view, the question of miracles is one to be decided on the basis of evidence and not to be summarily ruled out of court by an appeal to naturalistic assumptions.

As Mill admits a little further along in the same work, as quoted by Ballard:[15] "We cannot, then, conclude absolutely that the miraculous theory ought to be at once rejected. Once admit a God, and the production of an

[15] "Miracles of Unbelief," p. 105.

effect by His direct volition must be reckoned with as a serious possibility" (*Essays on Religion,* p. 230.)

However, many men are incapable of believing in miracles, in the evangelical meaning of that word, though the evidence is as strong as it can possibly be. The effect may be proved beyond dispute, but the *cause* can never be demonstrated and consequently the belief in miracles as effects produced by the immediate agency of God cannot be compelled or forced.

This fact is pointed out by J. S. Mill:[16] "All, therefore, which Hume has made out, is, that (at least in the imperfect state of our knowledge of natural agencies, which leaves it always possible that some of the physical antecedents may have been hidden from us) no evidence can prove a miracle to any one who did not previously believe the existence of a being or beings with supernatural power; or believed himself to have full proof that the character of the Being whom he recognizes, is inconsistent with his having seen fit to interfere on the occasion in question.

"If we do not already believe in supernatural agencies, no miracle can prove to us their existence."

The various quotations from the writings of J. S. Mill make three things very clear:

First, that the existence of God, if conceded, makes it necessary to reckon with miracles as a "serious possibility."

Second, that it is not possible "in the imperfect state of our knowledge as to natural agencies" to prove that a miracle is or is not the product of natural causes.

Third, that it is possible for a person to have such a bias or prejudice against admitting the existence of the supernatural that no amount of evidence can prove mir-

[16] "System of Logic," vol. II, p. 160.

acles to him. This last, by the way, is an admission that the proof or disproof as to the occurrence of miracles lies outside of the sphere of science, at least in it present state of advancement.

It is evident, then, that the naturalistic, or evolutionary, opposition to miracles can not be sustained.

In addition to his inability to disprove miracles, the evolutionist overlooks the evidence for the existence of God furnished by man's sense of moral obligation and responsibility with the implication involved in them of an "external imponent" or moral law-giver. In addition to this, man's sense of dependence on a higher power, his sense of unworthiness and guilt, his desire for reconciliation, imply a personal power who would naturally and logically see fit to reveal to man Himself and his purpose for man.

One of the outstanding weaknesses of the naturalistic position is that it fails to do justice to man's moral and religious nature.

An objection to miracles found among critical students of the Bible results from the adoption of a pantheistic philosophy which finds no place for sin. This leads to the argument that the belief in God's intervention in the universe is a depreciation of the Creator and his work of creation. In answer to such a contention, Edwin S. Carr[17] quotes from Weiss ("Life of Christ," vol. I, p. 199) as follows; "This objection would be quite relevant if we were treating of a phase in the ordinary development of the world. Not only, however, the apostolical announcement of Christ, but also every page of our evangelical tradition, proclaims the aim of Jesus' appearance to have been the bringing of salvation to a lost world. It is here supposed that the development of hu-

[17] "The Development of Modern Religious Thought," p. 259.

manity had taken an abnormal direction, that it had been turned away from the appointed goal instead of approaching it, and that by itself it could neither return to where it was, find the right track, nor reach the goal."

All the varied objections to miracles are simply symptoms of a concealed assumption—that there is nothing in man's nature or situation that calls for divine intervention.

What do evolutionists have to say about sin?

Naturalism knows nothing of sin in the Scriptural and evangelical meaning of that word.

In the evangelical meaning of the word, "Sin is any want of conformity unto or transgression of the law of God." As Alfred E. Garvie[18] expresses it: "Sin is a term which belongs to the realm of religion; it implies a disturbance of the relation between man and God. Not alone in the Hebrew religion, the promise, and the Christian religion, the fulfilment, is it recognized that man's conduct affects his dealings with the divine. While it must be admitted that in many religions ceremonial offenses are incongruously mixed up with those that we regard as distinctively moral, yet these offenses are regarded as disobedience to the God or gods worshipped, incurring the divine displeasure. We have instances in the Egyptian Book of the Dead or the Babylonian Penitential Psalms. What in its legal aspect is crime, and in its moral, vice, is in its religious, sin."

The distinction between crime and vice, on the one hand, and sin, on the other, makes it quite clear why evolutionists do not—and logically *cannot*—recognize sin in the sense of an offense against God. Consistent evolution, as we have seen, takes the form of atheism, pantheism or deism. Of the three, deism alone recognizes a personal God. But deism denies any personal relation

[18] "Christian Life and Belief," p. 14.

between God and man, thus making sin, as an offense against God, impossible. Evolutionists, then, may consistently recognize vice and crime, but not sin.

The sense of sin has been an insistent and serious experience in the life of the race, constituting in many cases an intolerable burden and leading multitudes of men to go to extreme lengths in order to gain peace of mind.

How do naturalistic thinkers account for this experience?

The sin of our first parents, we are told, was simply a transition from animal innocence, with its non-moral nature into a capacity for morality. As it has been aptly expressed: if there ever was a fall, it was a fall upward.

Of such a view Minton[19] says, "In his moral equipment, as yet undeveloped and unutilized, the Adam of Genesis is a vastly different kind of being from the Adam of evolution, sluggishly waking into human capacities, falling upward into the dawning consciousness of right and wrong, and rising at last to the permanent dignity of a guilty sinner."

And Bavinck[20] says, "From the whole history of man resounds a heart-breaking complaint over the disruption of life; it finds its finest expression in the songs of the poets, but each man knows it by experience; all religion is animated by it, every effort towards reform proceeds from it, all ethics assumes the imperative tone after the descriptive one, and every philosophy strives to set the heart at ease as well as to satisfy the intelligence. Men may differ as to the nature and reach of conversion, but its necessity is established beyond all doubt; the whole of humanity proclaims the truth of the fall."

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19 "The Cosmos and the Logos," pp. 139, 140.
20 "Philosophy of Revelation," p. 233.

What, then, is the evolutionary theory of sin? Sin is merely an anachronism, a case of atavism, in other words, our brute inheritance. Sin[21] is "the burden of our inferior animal life, only slowly shaken off, and permeated with utmost difficulty, with higher, more vital impulses."

Of the naturalistic attitude toward sin, Bavinck[22] says, "In our days some preach the doctrine that one must not take sin too seriously, because it is no habit, no condition, no bad inclination of the heart, but exclusively an arbitrary act of the will, which very easily arises from the conflict between the individual and society, between nature and culture, but for that reason also can easily be given up and conquered. On the other hand, sin is represented as a mass of egoistic instincts and passions, which have been carried over by man from his former animal condition, which still hold supremacy over the altruistic inclinations in the savage and in the child, and anachronistically and atavistically exercise their influence in the criminal type.

"The two views approach one another in this way, that the innate egoistic inclinations, namely, the animality and sensuality, are of themselves no sin, that they also in later life, if they are yielded to in conflict with the interests of society, cause no guilt and no stain, but only betray a weakness and disease, which need cure."

Such a conception of sin robs it of its essential sinfulness and moral debasement, and involves no stain or guilt. Such a theory explains sin *away*.

Sin is one thing, the *sense of sin* is another.

How do evolutionists explain the 'sense of sin'? The sense of sin is regarded as a pathological phenomenon, a morbid state of mind. Of the sense of sin, the feeling of conviction, that so commonly manifests itself before

21 "Evolution and Religion", Bascom, p. 103.
22 Op. cit., pp. 230, 231.

conversion, Starbuck[23] says, "The rapid formation of new nerve connections in early adolescence may be the cause of the physiological unrest and mental distress that intensifies into what we have called the sense of incompleteness which precedes conversion. The mind becomes a ferment of half-formed ideas, as the brain is a mesh of poorly organized parts. The pain and ache of the conviction period is an indication of high potentials of nervous energy which find no outlet of expression; in other words, it is clogged mental activity . . . . . Through heredity, doubtless, the brain is endowed with certain structural elements and latent energies which antedated their functional activity. The 'sense of sin' is the indication that they are trying to function—that the brute is pressing on to become a man."

Here we find the sense of sin reduced to the level of a pathological condition of the mind, to be explained in terms of brain anatomy and physiology. It has no more religious significance, according to this theory, than an attack of indigestion or some other physical ailment.

If such a theory be true, man's religious sense is a false instinct, a problem for the physician and psychiatrist —or specialist in mental diseases—something to be outgrown with the higher development of the race.

Are we to ignore sin, man's sense of sin, as manifested down through all the ages in man's sense of alienation from his God or gods, with its sense of guilt that has led man to offer his most precious possessions, his flocks and even his own offspring as a means of atoning for his sins, that has reared alters unnumbered and has made the cross the one adequate expression of his sense of unworthiness and guilt? Is man's religious sense which history has proved so basic and which alone offers a solution of the riddle of existence to be thus set aside?

[23] "The Psychology of Religion," pp. 152, 153.

And on what grounds? An *a priori* assumption that there is no God, in any true sense of that word, that man is merely a manifestation of the play of forces controlled by natural law.

The virtue of a hypothesis is to explain, and *not* to explain away, the facts of experience. Each of us must judge for himself whether the naturalistic philosophy furnishes an adequate explanation of man's religious experience.

The whole naturalistic tendency of thought today which manifests itself in scientific circles as evolution and in theological circles as rationalism—mistakenly called modernism—is simply a recrudescence of antisupernaturalism which is as old as philosophy and probably as old as humanity itself. It manifested itself in early Greek philosophy, it was present in the early Christian centuries, and it will have to be reckoned with as long as man's nature remains unchanged.

To sum up. Why do the evolutionists fail to prove their case?

Because as a philosophy, evolution is inadequate.

It furnishes no adequate theory as to origins. Apart from its deistic form—which is more a theology than a philosophy—it assumes the eternal existence of some sort of stuff, variously and contradictorily interpreted as matter, mind or neither.

In no case is there any adequate reason given why this potentiality should not have remained mere potentiality throughout all eternity.

And assuming a development that is capable, without intelligent direction, of attaining some definite end, no one knows how many cycles of development the stuff of the universe has passed through, or whether it has or ever will attain even one such cycle of development.

Nor does any form of evolution explain how life sprang from the lifeless, the moral from the non-moral, intelligence from the unintelligent.

It offers, then, no certain solution of the problem as to whence the universe came, what it is, or whither it is going.

So much, as to what it fails to explain about the universe.

The logic used in the support of evolution is either weak or clearly fallacious.

There are too many appeals to authority, which is another name for opinion and proves nothing conclusively since it is constantly changing.

There is too much use of analogy, which may have suggestive value, but does not rank as a canon of scientific reasoning since it may lead to conclusions either true or false.

There is too frequent appeal to conjecture, to mere imagination, to the assumed force of a multitude of probabilities, regardless of counter-probabilities.

There is too much misrepresentation of an opponent's position, too many men of straw set up, only to be ignominiously knocked down.

There is too much dogmatism, illustrating the sentiment, no doubt we are the people; too much intolerance, rating those of another belief as lacking in ordinary intelligence.

And when all else fails, there is the resort to deductive reasoning, attempting to establish facts by deduction from a generalization that is itself in need of proof.

As a philosophy of religion, evolution also fails.

Evolutionists try, by a process of evisceration, to make Bible history fit a preconceived theory as to how man must have developed religiously. To do this, they accuse the writers of various parts of the Bible of ignorance

and even of wilful forgery. In other instances they attach a figurative meaning to what are obviously meant to be historical statements. Too frequently they use evangelical terms in an unevangelical sense.

They assume an omniscience that qualifies them to say what sort of forces may or may not be operative in the universe, and that, too, without regard to historical evidence. From a limited observation they make inductions that are universal in their scope.

They deny any real significance to man's most basic and influential religious experiences, and make of man's sense of sin a pathological phenomenon.

Instead of furnishing a cure for man's religious ills, they tell him his ills are imaginary and, therefore, call for no remedy.

In short, evolution offers no satisfactory solution of the enigma of man's existence.

Such a showing does not commend evolution as a world philosophy.

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